The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE,

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 494.---Vol. XV.] LONDON: SATURDAY, FEBRUARY 8, 1845. [Price 6d.

SOUTH WALES—IRON-WORKS AND COAL MINES.—TO BE LET, ON LEASE, the TRIMSARAN ANTHRACITE IRON-WORKS and COLLIERIES, situate in the parish of Pembrey, in the county of Carmarthen, on the Kidwelly Canal, four miles from Bury Port and Kidwelly harbours, and the nearest anthracite iron-works to the line of the South Wales Railway. These valuable and important works comprise a MINERAL DISTRICT of nearly ONE THOUSAND ACRES, covering twelve or fifteen workable veins of coal (from three to nine feet thick), and numerous pins of iron ore of excellent quality, together with a seam of black-band, two feet thick, running the whole extent of the estate—forming an almost inexhaustible supply of anthracite, iron ore, and fire-clay, which minerals have hitherto only been worked by level, above which there are many years' supply yet remaining. A newly opened pit, winning an extensive range below the level, with a new engine, &c., has also been completed.

Conveniently situate on the premises are two blast-furnaces, blast-engines, hot-air stoves, cast-house, refineries which have been at work for twelve months, producing a superior sample of anthracite iron.

These important works are ready for immediate operation, requiring but comparatively a small capital for carrying them on, presenting an opportunity to the ironmaster and capitalist of readily possessing most important and valuable iron-works and coal mines seldom so easily afforded.

For further particulars, and to treat, apply to Messrs. Dawes and Sons, Angel-court, Throgmorton-street, London; or to Mr. Rees Jones, Loughor, near Swansea. 1

ELIGIBLE INVESTMENT.—TO BE DISPOSED OF, a valuable SLATE QUARRY, near Dolgelley, MERIONETHSHIRE.—The above quarry is advantageously situated on a mountain, the fall afforded by which is sufficient for the discharge of rubbish and the flow of water, without the aid of machinery. It is but seven miles from the quay, which belongs to it, with which it is connected by a good turnpike road, and with which, at no great expense, it might be more closely connected by means of a railway. The SLATE is ABUNDANT, and of excellent quality, resembling, in colour and metal, the celebrated Festiniog slate—free from spots and streaks—twice as durable as many of the Carnarvonshire slates, of a fine grain, with favourable joints and a good split. Levels have been driven into the vein, and openings made, furnished with iron rails for the waggons. The quarry is also provided with two barracks for workmen, counting-house, powder-house, engine-house, with a sawing machine, blacksmiths' shop, sheds for making slates, &c. Indeed, no expense has been spared in making arrangements for carrying on the works on an extensive scale. The slates are in great demand in Merionethshire and Montgomeryshire, and are already sold at a profit of from 30 to 40 per cent. The offer of the quarry for sale, affords a favourable opportunity for the investment of capital, which, with a slight additional outlay, might be brought to yield ample returns.

Further particulars and terms may be obtained by letter, addressed "T. C.," care of the Editor of the *Mining Journal, Railway and Commercial Gazette*, 26, Fleet-st., London. 2

TO BE LET, the LOTHBROKE MINE, with a SMELTING FURNACE, MILL, and BLAST-ENGINE, for IRON ORE. It is at present on a small scale, and only a moderate capital is required to set it in operation, which may be increased to any amount; and the owner is willing to give every encouragement to an active intelligent tenant, who understands the smelting, hammering, and rolling of bars. The ore is of the richest quality, and close at hand, at a low price of galeage. Distance from a seaport only seven miles, with other facilities for the convenience of a good business.—Address, for particulars, Mr. S. Woolcott, Sandhill-park, Taunton, Somerset. 3

THE GENERAL HALF-YEARLY MEETING OF THE WEST CORK MINING COMPANY will be HELD at the George and Vulture Tavern, Cornhill, in the city of London, on Thursday, the 6th day of March next, at One o'clock in the afternoon precisely, on the general business of the company, and also for the election of two directors and one auditor; and take Notice, that every proprietor intending to become a candidate to fill the office of director or auditor, must, within fourteen days from the time of the insertion of this advertisement, signify by some writing under his hand, stating the place of his residence and addition (such writing to be left within the same fourteen days at the office of the company, 39, Coleman-street, in the city of London), his intention so to become a candidate. By order of the board,

London, Feb. 4, 1845. T. M. SHADWELL, Secretary. 4

TRELEIGH CONSOLIDATED MINING COMPANY.—Notice is hereby given, that the directors of this company have this day made a CALL of FIVE SHILLINGS per share, payable on or before the 13th day of February next, at the London Joint-Stock Bank. By order of the board,

57, Old Broad-street, Jan. 6, 1845. ROWLAND NICHOLSON, Secretary. 5

MINING SHARES.—A FEW ORIGINAL SHARES remain to be APPROPRIATED in some valuable LEAD and COPPER MINES, the reports of which, as well as all necessary particulars, may be known on application to Mr. Thomas, 14, Poultry, London. 6

CHEAP AND DURABLE ROOFING.
BY HER MAJESTY'S ROYAL LETTERS PATENT.
F. M'NEILL AND CO.'S
IMPROVED PATENT ASPHALTED FELT,

The MANUFACTURERS beg to call the attention of ENGINEERS, ARCHITECTS, BUILDERS, and the public generally, to their IMPROVED PATENT ASPHALTED FELT, for ROOFING HOUSES, COTTAGES, VERANDAHS, OUTBUILDINGS, SHEDS, and every other description of building, in lieu of slates, tiles, thatch, zinc, &c. The FELT is also in great demand, and highly approved of, for lining granaries and storehouses, for covering garden sheds and frames, and corn and hay ricks; it is also a protection to ceilings under flooring from wet and damp, at the same time deadening sound. The felt is perfectly impervious to rain, frost, or snow, and is a non-conductor of heat.

The great superiority of this article over every other description of roofing consists in its CHEAPNESS, LIGHTNESS, ELASTICITY, WARMTH, and DURABILITY—advantages which no other description of roofing combines, and which have been tested and fully proved by several years' experience.

*** Samples, with full directions as to its uses, and the manner of applying it, with testimonials from, and reference to, gentlemen who have extensively used it, sent free to any part of the town or country; and orders by post immediately executed.

The PRICE of the ROOFING FELT is only ONE PENNY PER SQUARE FOOT, which is considerably less than half the expense of tiles, and not more, in most places, than one-quarter the expense of slates; besides which, there is an immense saving effected in the expense of carriage and laying on, and particularly in the timber necessary to support the roof, as the weight of the felt is only about 24 lbs. to the 100 square feet.

F. M'NEILL AND CO. also manufacture a felt for use under the chairs, &c., of rails; and a dry hair felt for covering the boilers, cylinders, &c., of steam-engines.

PATENT FELT MANUFACTORY, LAMB'S-BUILDINGS, BUNHILL-ROW, LONDON. 7

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES, AND CLOCKS.—E. J. DENT, 82, Strand, and 33, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.

DENT'S PATENT DIPLIEDOSCOPE, or meridian instrument, is now ready for delivery. Pamphlets containing a description and directions for its use 1s. each, but to customers gratis. 8

OFFICE FOR PATENTS, 7, STAPLE INN, HOLBORN. J. MURDOCH (successor and late assistant to Mr. Hebert) informs INVENTORS and PATENTEES, that at his OFFICE they can obtain

REFERENCE TO A CLASSIFIED LIST OF PATENTS,

(THE ONLY ONE EXTANT), which shows at one view all the Patents ever granted for any particular object, whereby they may save much trouble and expense, and procure information not otherwise obtainable. BRITISH and FOREIGN PATENTS OBTAINED, and USEFUL and ORNAMENTAL DESIGNS REGISTERED.

SPECIFICATIONS carefully prepared, and REPORTS of ENROLLED SPECIFICATIONS furnished on moderate terms.

FINISHED and WORKING DRAWINGS executed with accuracy and despatch. 9

EUROPEAN LIFE INSURANCE AND ANNUITY COMPANY.

Instituted Jan. 1819.—*Empowered by Special Act of Parliament, 7 and 8 Vic., cap.* 48.

OFFICE—No. 10, CHATHAM-PLACE, BLACKFRIARS.

BOARD OF DIRECTORS.

JOHN ELLIOT DRINKWATER BETHUNE, Esq., 80, Chester-square, Chairman.
Thomas Henry Call, Esq., 1, Mount-street, Grosvenor-square.
John Rivett Carnac, Esq., 46, Devonshire-street, Portland-place.
John Greathed Harris, Esq., 2, Old Palace-yard.
Henry H. Harrison, Esq., 1, Percy-street, Bedford-square.
Thomas Hunt, Esq., 11, Manchester-square.
William Paxton Jervis, Esq., 59, Cadogan-place, Sloane-street.
Alexander H. Macdougall, Esq., 44, Parliament-street.
William Sargent, Esq., Treasury Chambers, Whitehall.
Frederick Silver, Esq., 10, James-street, Buckingham-gate.
John Stewart, Esq., 22, Portman-square.
Geo. James Sullivan, Esq., 1, Arlington-street, and Ditcham-grove, Petersfield, Hants.
John Thoyts, Esq., 8, Foley-place. 10

This OLD ESTABLISHED SOCIETY has recently received ADDITIONAL POWERS, by Special Act of Parliament, and affords FACILITIES in effecting INSURANCES to suit the views of every class of insurers.

PREMIUMS are received yearly, half-yearly, or quarterly, or upon an increasing or decreasing scale.

Two-thirds of the profits are added septennially to the policies of those insured for life; one-third is added to the guarantee fund for securing payment of the policies of all insurers.—Those who are insured to the amount of £500 and upwards for the whole term of life, are admitted to vote at the half-yearly general meetings of the proprietors.

Annual premium for insuring £100 on a single life:—

Age next birth day.	20.	30.	40.	50.	60.
Premium	£1 18 1	£2 3 1	£3 2 6	£4 5 6	£6 5 8

DAVID FOGGO, Secretary.

STEAM TO INDIA VIA EGYPT, MALTA, ITALY, ALEXANDRIA, AND THE PENINSULAR PORTS.

PASSAGE TO BOMBAY, MADRAS, AND CALCUTTA.

The Peninsular and Oriental Steam Navigation Company's steam-ships

START FROM SOUTHAMPTON THE FIRST OF EVERY MONTH,

arriving at Alexandria about the 15th. The Hon. East India Company's steamers leave Suez for Bombay about the 23d of the month, and for Madras and Calcutta the Peninsular and Oriental Steam Navigation Company's steamers, *Hindostan* and *Bentinck*, or Government steamer. The Peninsular and Oriental Steam Navigation Company have now a steam-tug on the Mahmoudeh Canal, and other great improvements have lately been introduced into the transit through Egypt.

STEAM TO MALTA, ITALY, &c. 11

A steamer from Southampton leaves the first of every month for Malta, whence are steamers to Naples, Genoa, Civeta Vecchia, three times a month.

STEAM TO OPORTO, VIGO, LISBON, CADIZ, AND GIBRALTAR.

A steamer leaves Southampton every Thursday at 3 p.m. for the above places.

Apply at the Peninsular and Oriental Steam Navigation Company's offices, 51, St. Mary Axe, London, where only passages can be secured throughout.

IRON STEAMERS.—WANTED, A PARTNER, with capital, in an established IRON FOUNDRY, situate on the western coast, of high connection, and better adapted than most others in the kingdom for the BUILDING and FITTING-UP of IRON STEAMERS, as well as for all other branches of the Iron Engineering trade.—Apply to Messrs. Peppercorne, 2, Old Broad-street, London. 12

STEAM-ENGINES, from 8 to 16-horse power, ALWAYS in STOCK.—Apply to Mr. Capper, engineer and ironfounder, Birmingham.

Price.....£12 per horse.

N.B.—CASTINGS AND PIT WORK MADE TO ORDER. 13

WANTED, as HEAD VIEWER, a person perfectly acquainted with Colliery Workings on an extensive scale, who will be required to devote the whole of his time thereto. References and testimonials as to ability will be strictly required into. Application to be made, by letter, to J. Jones, jun., and Co., Oldham. 14

EUROPEAN GAS COMPANY, February 3, 1845.—Notice is hereby given, that an EXTRAORDINARY GENERAL MEETING of the proprietors will be HELD on Thursday, the 20th day of February inst., at the hour of Two o'clock in the afternoon precisely, at the office of the company, 39, Finsbury-circus, London.

By order of the board, J. B. GREAVES. 15

IRISH WASTE LAND IMPROVEMENT SOCIETY,
5, ST. MILDRED'S-COURT, POULTRY, LONDON.

Notice is hereby given, that the next HALF-YEARLY GENERAL MEETING of shareholders of this society will be HELD at the King's Head Tavern, in the Poultry, London, on Tuesday, the 25th of February inst., at One o'clock precisely, in conformity with the provisions of the Act of Incorporation. By order of the committee,

February 3, 1845. FREDERICK FRY, Secretary. 16

BRISTOL AND EXETER RAILWAY.—Notice is hereby given, that the next HALF-YEARLY GENERAL MEETING of the proprietors of this company will be HELD, in pursuance of the Act of Parliament, at the White Lion Hotel, in the city of Bristol, on Thursday, the 27th of February, at Twelve o'clock, for the election of directors, in the room of those who retire by rotation, and for other affairs.—The chair will be taken at One o'clock precisely. FRED. RICKETTS, Chairman.

The retiring directors may be re-elected.

The Transfer Books will be closed on Monday, the 17th of February, and not re-opened until after the said general meeting, on the 27th.

By order of the board of directors,

Office, 30, Broad-street, Bristol, Feb. 1, 1845. J. B. BADHAM, Secretary. 17

DISS, BECCLES, AND YARMOUTH RAILWAY COMPANY.—The shareholders in this company are requested to MEET the PROVISIONAL COMMITTEE, at the London Tavern, on Thursday, the 13th day of February inst., at Twelve o'clock precisely, to receive and consider their report; and to determine as to the propriety of giving the committee power to apply to Parliament for an Act this session, and, for that purpose, to place at their disposal the full amount of the deposit paid upon the shares; and, generally, to consider the present position of the company, with reference to the decision of the Board of Trade, and the assurances of support subsequently received by the committee, which warrant them in recommending the immediate application to Parliament. By order of the committee,

R. MASSE, Secretary. 18

ARMAGH, COLERAINE, AND PORTRUSH RAILWAY *(PROVISIONALLY REGISTERED.)*

Temporary Offices of the Company, 4, Great Winchester-street, Old Broad-street, London.

Capital £600,000, in 24,000 shares, of £25 each.
Deposit £1 7s. 6d. per share.

No Application for Shares will be received after Thursday, the 20th inst., until that time Prospectuses, with forms of application for shares, may be had of the solicitor to the company, George Ogle, Esq., 4, Great Winchester-street; James Watt and Co., solicitors, Dublin; Messrs. Boyle, Low, Pim, and Co., College-green, ditto; John Cumming, Esq., Armagh; Wm. Green, Esq., Ballymoney; Robert M'Farland, Esq., Coleraine; Mr. Thos. Crewdson, stock and sharebroker, Liverpool; Messrs. Cardwell and Sons, stock and sharebrokers, Manchester; or of the secretaries, at the temporary offices of the company. 19

SAMBRE AND MEUSE CENTRAL RAILWAY COMPANY.

DIRECTORS.

M. Jean Wautelet, President of the Coal Committee, and Vice-President of the Chamber of Commerce of Charleroi.
M. Victor Joseph Drapier, merchant, Lodelinsart, near Charleroi.
M. Auguste Delavelye, C.E., Brussels.
Sir Valentine Blake, Bart., M.P.
George Thomas Pitter Essen, Esq., High Beach, Essex.
Major Harriott, R.E., Grove House, Twickenham.
Augustus William Hilliary, Esq., 66, Cadogan-place.
Nathaniel Ogle, Esq., Heath-lane Lodge, Twickenham. 20

BANKERS.

Messrs. Brugmann and Fils, Brussels.
Messrs. Masterman, Peters, and Co., London.

The committee respectfully inform the applicants for shares in the capital stock of this company, that they have completed the allotment of the limited number placed at their disposal, and request that such parties as shall not have received a letter of appropriation, will attribute the fact to the inability of the committee to comply with their request.

By order,

15, Old Jewry Chambers, Feb. 5, 1845. OSMUND LEWIS, Secretary.

BORDEAUX, TOULOUSE, AND CETTE RAILWAY COMPANY, uniting the ATLANTIC with the MEDITERRANEAN, and forming a CONNECTION between the three important cities of BORDEAUX, TOULOUSE, and MARSEILLES.

Capital £4,800,000, in shares of £20 each, of which one moiety is to be subscribed in France, the other in Great Britain.

Deposit £2 per share; to provide the usual caution money, or deposit, required by the French Government, and which will be returned without any deduction whatsoever, but without interest, upon the production of the bankers' receipt, if this company shall not become the lessees of the railway, pursuant to a law of the present session of the French Chambers.

PROVISIONAL DIRECTORS.

IN FRANCE.

CHAIRMAN—M. F. X. De EZPELETA, Banquier à Bordeaux. 21
M. Bruno Devès, Président du Tribunal de Commerce de Bordeaux.
M. D'Orient de Bellegarde, Receveur Général des Finances du Département de l'Ariège.
M. Ed. Dotezac, Maitre de Poste de Bordeaux, et Administrateur des Messageries du Midi, et Membre du Conseil Municipal du Bordeaux.
M. Biquet, Entrepreneur des Transports accélérés de Bordeaux à Toulouse et Marseille.
M. Cibiel, Administrateur des Messageries à Toulouse.
M. F. Glaize, Administrateur des Messageries à Montpellier.
M. Serres, Ancien Administrateur du Chemin de Fer d'Avignon à Marseille, et Administrateur des Messageries à Montpellier.
M. J. Ricard, Administrateur du Chemin de Fer d'Avignon à Marseille, et Regent de la Banque de Marseille.
M. Théophile Delord, Administrateur du Chemin de Fer d'Avignon à Marseille.

IN ENGLAND.

DAVID SALOMONS, Esq., Chairman.
JOHN BAGSHAW, Esq., Deputy-Chairman.

Colonel Sir F. Hankey, G.C.M.G.	Joseph Esdaile, Esq.
J. H. Attwood, Esq.	Charles E. Mangles, Esq.
Adam Duff, Esq.	J. Mayer Montefiore, Esq.

BANKERS.

London—Messrs. Hankey.
Liverpool—The Royal Bank of Liverpool.
Paris—MM. De Rothschild, Frères.

SOLICITORS—Messrs. Wilkinson and Cobbold, 7, Lincoln's Inn-fields.

Prospectuses, with printed forms of application for shares, may be had at the company's office, No. 31, Lombard-street, London; and of Messrs. W. Reynolds and Sons, Liverpool. Letters of application may be addressed to Messrs. N. M. Rothschild and Sons; to Messrs. D. and J. Salomons; or to the secretary, at the office of the company.

None but applications on the prescribed printed forms can be attended to.

BORDEAUX, TOULOUSE, AND CETTE RAILWAY.—NO further APPLICATIONS for SHARES in this company will be RECEIVED after MONDAY next, the 10th inst. DAVID SALOMONS, Chairman.

31, Lombard-street, London, Feb. 8. 22

THE ELECTRIC TELEGRAPH.—COOKE AND WHEATSTONE PATENTEES.

The ELECTRIC TELEGRAPH has been adopted on the following LINES:—

By ORDER OF THE LORDS OF THE ADMIRALTY, on the South-Western Railway, as a GOVERNMENT TELEGRAPH from the ADMIRALTY, Whitehall, to PORTSMOUTH, above NINETY MILES.

On the same line, as a Commercial Telegraph from Nine Elms to the Port of Southampton, 77 miles—with a branch to Gosport, 15 miles.
On the London and Blackwall Railway.
Great Western Railway, from London to Slough, 18 miles—the Windsor Telegraph.
Yarmouth and Norwich Railway, a "Single Way," 20 miles.
London and Dover Railway, from Tunbridge to Maidstone, a "Single Way," 15 miles.
Part of the Oldham Branch Railway.
Part of the Leeds and Manchester Railway.
Part of the Edinburgh and Glasgow Railway. 23
The Dalkey (atmospheric) Branch of the Dublin and Kingstown Railway.

In addition to the above, the Telegraph is about to be laid down on several "single lines" in different parts of England, Scotland, and Ireland.

Mr. Cooke is prepared to grant licences for the use or erection of the Telegraph for entire districts of country, where the boundary can be accurately defined.

Mr. Cooke will also undertake to erect a Telegraph in any part of the United Kingdom for a fixed amount.

For further particulars apply to W. Fothergill Cooke, Esq., Kidbrooke, Blackheath; or to Robert Wilson, Esq., solicitor, 1, Copthall-buildings, London.

RAILWAY WHEELS.—Two years' very extensive experience has demonstrated that T. BANKS'S PATENT MODE of RENEWING the WORKING SURFACE of WHEEL TIRES, with STEEL, effects a SAVING OF FIFTY PER CENT. of the expense of railway wheel tires above any other plan hitherto used.

For TERMS of LICENSE for England, Scotland, and Ireland, apply to

T. BANKS, ENGINEER, GERMAN-STREET, MANCHESTER. 24

The following firms have taken Licenses to Steel Wheels in their respective localities:—
Messrs. Robert Stephenson, and Co., engineers, Newcastle-on-Tyne.
" Swayne and Bovill, engineers, Millwall, Poplar, London.
" Kitson, Thompson, and Co., engineers, Leeds.

ANDREW SMITH'S PATENT WIRE ROPE, FOR MINING, RAILWAY, and SHIPPING PURPOSES.—The Royal yacht *VICTORIA AND ALBERT, PENELOPE, VIRAGO, HERMES*, and several other ships in the Royal Navy, as well as the Merchants' Service, have been FITTED WITH ANDREW SMITH'S PATENT WIRE ROPE; it is about half the size and weight of hempen rope and one-third cheaper.—For particulars apply to A. Smith, 69, Princes-street, Leicester-square; White Lion-court, Cornhill; or at the works, Millwall, Poplar, London 25

SIR W. BURNETT'S PATENT—THE CHEAPEST AND BEST PROCESS for the PRESERVATION OF TIMBER, CANVAS, CORDAGE, COTTON, WOOLLEN, &c.—LICENSES GRANTED to NOBLEMEN and GENTLEMEN to use the preparation; and to others, for the purposes of trade, on advantageous terms.

HYDRAULIC APPARATUS AND TANKS, 26

for the expeditious preparation of the above materials, at the principal station, MILLWALL, POPLAR, nearly opposite Greenwich.

Numerous SPECIMENS and TESTIMONIALS may be seen, and every information obtained, at the office, 53, King William street, London-bridge.

ARCHITECTS AND ENGINEERS contemplating the EXECUTION OF WORKS WITH ASPHALTED BRICKS AND ASPHALTE, as described in page 26 of the book of *Instructions for Using Seyssel Asphalte*, have now an opportunity of SEEING the PARTICULAR MODE of EXECUTING such WORK, at the ROYAL BOTANICAL GARDENS, REGENT'S PARK, where a reservoir is being lined by this company, by order of her Majesty's Commissioners of Woods and Forests. 27

J. FARRELL, Secretary,

Feb. 1, 1845. Seyssel Asphalte Works, Stangate, London.

TO ENGINEERS, RAILWAY CONTRACTORS, MINING AGENTS, IRONMASTERS, AND OTHERS REQUIRING FINE GREASE for MACHINERY and AXLES of every description.—JOSEPH PERCIVAL'S IMPROVED ANTI-FRICTION GREASE is—after trials on machinery and axles of every kind where constant friction is kept up—admitted to be the most useful, economical, and best preparation of the kind ever offered to the public. 28

References to scientific and practical men can be given, and testimonials shown of its great excellence.—Samples forwarded on application at the manufactory, Green-street, Wellington-street, Blackfriars-road, London.

THE PATENT GALVANISED IRON COMPANY beg leave to announce to the public, that they are prepared to SUPPLY ROOFING, SHIP SHEATHING and FASTENINGS, CHAINS, and the endless variety of articles to which iron, not subject to rust, may be applied.—Testimonials may be seen by application at the office, 3, Mansion House-place, London. 29

CAUTION.—THE PATENT GALVANISED IRON COM-PANY having ascertained that certain PARTIES are INFRINGING THEIR PATENT by the MANUFACTURE and SALE of a SPURIOUS and COUNTERFEIT ARTICLE, to the injury of the company and the detriment of the public, hereby give NOTICE, that this COMPANY have the SOLE PRIVILEGE of manufacturing and selling IRON COATED WITH ZINC, commonly called "Galvanised Iron," and that they will inflict the utmost PENALTIES of the law upon all PERSONS MANUFACTURING or SELLING the same without their authority, as well as upon all persons buying or using any Galvanised Iron not manufactured by them, or sold by their authority.

3, Mansion House-place, London, Jan. 24, 1845.

THE PATENT SAFETY FUSE, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the SAFEST, CHEAPEST, and most EXPEDITIOUS MODE of effecting this very hazardous operation. From many testimonies to its usefulness with which the manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c.:—"I am very glad to hear that my recommendations have been of any service to you; they have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of the." Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Tuborne, Cornwall. 30

31

TO ENGINEERS, RAILWAY CONTRACTORS, &c.—The PATENT RIVET COMPANY OF SCOTLAND, 25, BROWN STREET, Glasgow, MANUFACTURE (under the superintendence of the acting partner, Mr. Alexander G. Gilkison) all descriptions of BOILER and TANK RIVETS, WOOD SCREWS, SCREW BOLTS and NUTS, RAILWAY SPIKES, &c.

Orders executed with despatch, and forwarded to all parts of the United Kingdom.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

SMART'S ELLIPTICAL CONVEX METALLIC FLOATS, for STEAM-SHIPS, as applied to the Bristol and Dublin steamer *SHAMROCK*, and to the *SWIFT*, between Newport and Bristol; and also to the *OSPREY*, running between Bristol and Waterford. The patentee has now the satisfaction to announce, that, in addition to the ships already named, he has granted a LICENSE to the Bristol General Steam Navigation Company to USE his PATENT FLOAT in all their steam-ships, comprising the Dublin, Cork, Waterford, and the various channel port steamers, varying in power from *forty* horses to *two hundred* each.

The numerous ADVANTAGES attending this valuable invention may be seen below:

1. The appearance of these floats is light and elegant.

2. Their durability and stability are indisputable, as may be instanced by the *Shamrock* steamer, which has been fitted with them for nearly twelve months, and has since steamed *twenty-five thousand miles*. The floats are now as firm and good as they were the first day.

3. Vibration is reduced so as to be scarcely perceptible; thus, the engines are eased, and both they and the ship suffer less wear and tear; and, from their peculiar form, they are strikingly advantageous in cases of strong head wind and heavy sea. Backwater and undulation is also reduced to its smallest quantum, and thereby lessening the chance of accident to small boats, barges, &c., which has hitherto been consequent on the operation of the common paddle-float, particularly in crowded rivers.

4. They more readily arrest the progress of a ship in chances of a collision, the concave side taking the water when this operation is performed. This is of great importance in preventing collisions, or backing off a shore.

5. They are very simple, and are easily applied to any paddle-wheel, at nearly the same cost as the common float, and THEY INCREASE THE SPEED MORE THAN ONE KNOT PER HOUR.

For license to use them (for which the charge is 10s. per horse-power), apply to the patentee, Mr. ROBERT SMART, 5, Grenville-place, Hotwells, Bristol, who will personally attend the fitting, if required, his travelling expenses being paid. 32

AGENTS.

Messrs. George Lunell and Co., engineers and shipbuilders, Bristol.
W. J. Le Feuvre, Esq., Southampton.
J. N. Smart, Esq., Swansea.
Thomas Mowatt, Esq., engineer, Leith, near Edinburgh.
Scott, Sinclair, and Co., Greenock.
W. H. Hutchinson, Esq., Hull.
J. R. Pim, Esq., Dublin and Liverpool.
Jukes, Coulson, and Co., 12, Clement's-lane, London.

*** Testimonials of the highest order, on application to the patentee or his agents, Bristol, December, 1844.

Proceedings of Public Companies.

HIBERNIAN MINING COMPANY.

The half-yearly meeting of this company was held at the office, in Austin-friars, on Friday, the 7th inst.,—The chair was taken by J. H. BRADSHAW, Esq., when the SECRETARY read the report, from which it appeared that as the workings approached the surface, the coal was found less free from faults. Although the raisings had considerably increased, it was of the small coal, and when the season for its disposal was the less favourable. The sales during the six months ending the 31st of December, amounted to 7027 tons, which, by the increased proportion of small coal, had only realised the sum of 2224*l.* Since that period, an improvement had taken place both in the quantity and quality of the coal raised, showing a present increase in the sales of upwards of ninety tons. Every effort was being made to sink the new shafts, so as to get at the deeper levels. Of the estimated depth of seventy yards, sixty-six had been attained, where the strata was found to be of a very favourable description; and it was trusted that a seam would be shortly reached, which would materially improve the prospects of the concern. With a view to economy, the directors had dispensed with the services of their viewer, and placed the mine under the management of their principal agent.—The report having been adopted, the chairman, deputy-chairman, and three of the directors, retired from office, but were re-elected; when thanks were voted to the chairman, and the meeting separated.

LONDON AND COUNTY JOINT-STOCK BANK.

The annual meeting of this company took place on Thursday, the 6th inst., at the bank, in Lombard-street, and was numerously attended.—The chair was taken by WILLIAM HAWES, Esq.—The SECRETARY having read the advertisement convening the meeting, the CHAIRMAN alluded to the continued prosperity of the company, and stated that the profits had arisen, not from any speculation in the funds or such like, but from a legitimate increase in the deposits, and the commission received at the head and branch offices. The average increase on each balance was 8 per cent., and the increase of business during the last year was from 17 to 18 per cent. The securities now held by the company, he was happy to say, were of such a negociable character, that happen what might, the company was in a position to meet any emergency. He mentioned the surprise of the directors, at hearing that the Court of Exchequer had sanctioned another new trial in respect to the scrip, which had been lodged in their hands by Messrs. Colls, the brokers, for advances made to them in the ordinary course of business, and went into the particulars of the former trials; he concluded, by observing that if the holders of scrip were bound to prove the right of possession to that scrip, which was usual to pass like a bank note, there was a complete upsetting of the custom of the city of London, of Liverpool, Manchester, and other places, where, by means of such scrip, money had been raised for the construction of railways all over the world. He had no doubt that if they were forced again into court, that they should come forward with such evidence as would lead to a successful issue.

Mr. NICHOLS (the secretary) then read the report, which, with the resolutions will be found in our advertising columns.

Mr. HAMBLETON wished to know if any limit was to be placed to the formation of branches? Looking at the smallness of their capital, they might, by extending them too far, be incurring too great responsibilities.—Mr. HAMMOND compared the small sum of 800*l.* carried to the reserve fund in 1843, to that for the last year, 3403*l.* He was desirous of seeing the investment of their guarantee fund in the public funds, which he thought would give the public greater confidence.—The CHAIRMAN said that, in respect to the branches they were confined within sixty-five miles of London. They had a branch, it was true, at Dover, which was retained, because it was so extremely well managed; and also one at Sandwich, which was very profitable. In relation to new branches, he thought the directors would not be acting judiciously if they saw a suitable opportunity for introducing the joint-stock principle into a town, not to take advantage of it; the like case had occurred in the county of Huntingdon, where the bankers were largely engaged in the trade of the neighbourhood. Now, the principle of the joint-stock bank was to have neither local trade nor local interest. The directors having received notices of the desirability of introducing the joint-stock principle in that county, did, at the close of the year, open a branch at St. Neott's and one at St. Ives, which, with the rest of the branches, had all turned out profitable. As to investing the guarantee fund, he thought it not advisable, if they could get a higher rate of interest; but the question was for the decision of the proprietors.

Mr. BARRETT (one of the auditors) spoke of the *bona fide* nature of the accounts, and was happy to find that the amount for the preliminary expenses of the branches had not been increased; it still remained at 17,000*l.*, and this was for the plant, as it were, of about forty branches.—The CHAIRMAN said, there was now no necessity for applying money to preliminary expenses, and, therefore, they paid for each branch as they went along.—The report was then agreed to unanimously, and a sum of 1500*l.* was voted to the directors for their services for the current year.—William Hawes, Clement Tabor, and John Wheelton, Esqs., were then re-elected directors unanimously.—Messrs. Warter, Barrett, and Donkin, were elected auditors.

Mr. E. KNOCKER (of Devon) proposed a vote of thanks to the directors for the zeal and ability with which they had managed the company's affairs for the past half-year.—Mr. JAMES seconded the motion, which was passed by acclamation.—Mr. WHEELTON (a director) moved a vote of thanks to Mr. Luard (the general manager), also to the inspector, the secretary, and to the respective branch managers, which was seconded by Mr. JOHNSON, and passed unanimously.—Mr. LUARD returned thanks. He said he had foretold that they would open 2000 accounts in the year 1844. They had not done quite so much, they had only opened 1966. It was stated on the occasion of a late call that it would not be forthcoming; he was happy to say that 40,000*l.* of it was paid in anticipation. Of the last call 20,000*l.* was paid in anticipation, the rest was settled on the day fixed, except some executorship accounts, which required a little time to arrange.—Mr. BURNAND, of the Scock Exchange, considered that if a court of law was to reverse the daily practice of the market of taking scrip from hand to hand, the holder being looked upon as the *bona fide* possessor, there would be the greatest confusion in the monied world. Without this plan, not one-tenth of the 150,000,000*l.* for railways would ever have been got together.—Thanks having been voted to the chairman, the meeting adjourned.

UNION BANK OF AUSTRALIA.

A special meeting of the governors and directors of this establishment was held on Wednesday, the 5th instant, at their rooms, Old Broad-street, for the purpose of confirming the resolutions passed at the general meeting on the 20th ult., for repealing the 16th and 101st clauses of the Deed of Settlement, and substituting others which were deemed more advisable.—Among the directors present, we noticed Messrs. J. J. Cummins (chairman), C. Mangles, J. R. Todd, J. Gore, J. B. Smith, T. Young, B. E. Lindo, R. Brooks, and Robert Carter.—The purport of the new clause, in place of the 16th, is that the meetings of the proprietors and directors be in future held on the first Thursday in July, and on such other days as they may think fit; and that of the clause, to be substituted for the 101st, is that the sum of 2000*l.* be henceforth the annual remuneration of the directors, divisible among them, to be first awarded on the 30th July next.—The question on each clause was put separately and carried unanimously, and the meeting separated.

SOUTH-EASTERN RAILWAY COMPANY.

A special general meeting of the proprietors assembled on Thursday, the 6th inst., to discuss the expediency of applying to Parliament during the present session for powers to extend their operations to a vast and enormous degree, involving the outlay of no less a sum than nearly four millions sterling. The Board of Trade has already reported in its favour, and, from the statistics given at the meeting, we see no reason for disapproving the decision. The equivalent horizontal distance of the London and Dover is 99¾ miles—that of the South-Eastern 88½ miles; again, the equivalent horizontal distance of the Croydon and Ashford would have been 121¼ miles; the improvement, therefore, on the line recommended by this company is thirty-three miles, and it is more than fourteen better than the North Kent line to Chilham. Not only, however, was this project superior to the others proposed, in that it contained few difficulties, but it possessed actual merits of no insignificant order. Out of the 134 miles which it will traverse, 100 are rich mineral districts—thus offering considerable advantages respecting traffic. Again, the great benefit of its direct Tunbridge line, contemplated in their present scheme, is a diminution in distance of twelve miles, and an avoiding the toll; to prove the vast importance of this latter object being gained, it need only be mentioned, that out of the gross receipts of 182,167*l.* of the South-Eastern, 151,323*l.* paid toll to the Croydon Railway. The lines which it is proposed to execute will comprise 160 miles of railway, which, when completed, will give an amount of 294 miles traversed by this company. The new projected lines are:—The North Kent line, beginning on the Surrey side of the Thames, at a point between the Hungerford and Waterloo-bridges, and passing by the Bricklayers' Arms Station, over the Greenwich Railway, by Deptford, Woolwich, Greenhithe, Dartford, Gravesend, Stroud, Rochester, Chatham, Sittingbourne, Faversham, and terminating at Chilham, where it joins the company's present line from Ashford to Canterbury, Ramsgate, and Margate; it comprehends also a branch from Milton next Sittingbourne to Sheerness, and another branch, or rather duplicate line, from Eltham to Stone, near Dartford. The Minster and Deal line. The Maidstone and Rochester line. The direct Tunbridge line from Eltham to Shoreham, Otford and Igtham, with a fork to Tunbridge and Paddock Wood. The line from Tunbridge to Tunbridge Wells. And a line from Ashford to Hastings. Notice has also been given to extend the Greenwich Railway as far as the Park, and to make a return branch from Woolwich to the opposite side of the Park, so that, if the consent of the Government be obtained, the line to Woolwich will pass direct through Greenwich and Greenwich Park, instead of taking the more circuitous route by Blackheath. To procure the additional capital of 3,780,000*l.* (the estimated amount required for constructing and opening for traffic all these contemplated lines), it was resolved to issue 126,000 new shares of 50*l.* each to parties who shall pay for the same 30*l.* per share, by instalments of 2*l.* 10*s.* at intervals of two months. The beneficial effects of the undertaking were urged by a comparison with other lines: thus, the Greenwich Railway, with which they had formed a connexion, had 2,115,581 passengers in 1844, and the increase in January, 1845, over the corresponding month in 1844 was 32,265, the increase in money being 973*l.*, 588*l.* of which arose from traffic—whilst, notwithstanding this enormous amount of traffic, the diminution in coach travelling is only 25 per cent. since the commencement of the Greenwich line. These facts were strongly urged as fair reasons for anticipating a complete success in the contemplated operations, more especially as the population of Kent is pre-eminently numerous, it being calculated that in that county there are 400 persons per square mile.

The different propositions were unanimously agreed to, and thanks having been voted to the chairman and directors, the meeting separated.

EASTERN COUNTIES RAILWAY COMPANY.

SEVENTEENTH GENERAL MEETING.

DIRECTORS.

HENRY BOSANQUET, ~~Lower Berkeley-street~~, Portman-square, London, Esq., Chairman.
ROBERT CROSBIE, Liverpool, Merchant, Deputy Chairman.

Samuel Anderson, New Broad-street, London, merchant.
Cornelius Butler, Ingatestone, Essex, surgeon
John Bagshaw, King William-street, London, merchant.
Joseph Christopher Ewart, Liverpool, Esq.
Thomas Gibbes, Throgmorton-street, London, broker.
Richard Harrison, Liverpool, Esq.
Charles Hood, Upper Thames-street, London, merchant.
Robert William Kennard, Upper Thames-street, London, merchant.
Francis Valentine Lee, Temple, London, barrister-at-law.
Robert Mather, Liverpool, merchant.
Thomas Mills, Tolmers, Hertford, Esq.
Daniel Mather, Liverpool, merchant.
Richard Paterson, Blackheath, Esq.
William Routh, Old Broad-street, merchant
Henry George Ward, Much Hadham, Ware, Esq., M.P.

William Collings Wells, Chelmsford, Essex, brewer.

At a General Meeting of the shareholders of this company, held in pursuance of the company's Act of Incorporation, and after due notice given, at the London Tavern, Bishopsgate-street, London, on Wednesday, the 5th day of February, 1845; HENRY BOSANQUET, Esq., in the chair;

The book of registry was produced, containing the names and additions of the several persons who, on the 5th of February, 1845, were holders of capital stock of this company; and the common seal of the company was, by the authority, and in the presence, of the meeting, affixed to the same.

A report from the directors, and balance-sheet, showing the receipts and expenditure of the company to the 4th January last; and balance-sheets of receipts and disbursements in the traffic department of the Colchester line, from 5th July, 1844, to 4th January last, and of the Cambridge line, from 1st July to 31st December last, and also a report of Robert Stephenson, Esq., were read.

The following resolutions were then severally moved and seconded and carried unanimously:—

Resolved,—That the report of the directors, now read, and also the balance-sheets annexed, be received, and adopted, and printed, and that copies of the same, and of Mr. Robert Stephenson's report, be forwarded to every registered shareholder.

Resolved,—That the sum of 4000*l.* be appropriated to the directors for their services from the month of October, 1840, up to the period of the amalgamation of the Eastern Counties and Northern and Eastern Railway Companies in January, 1844, and that from that period, and so onwards in future, the remuneration to the board of directors be fixed at the sum of 1800*l.* per annum, both sums to be apportioned by them in such way as may appear to them just and convenient.

Resolved,—That the four retiring directors—viz., Henry Bosanquet, Esq., Cornelius Butler, Esq., Joseph Christopher Ewart, Esq., and William Collings Wells, Esq., be re-elected directors of this company.

Resolved,—That this meeting hereby confirms the forfeiture, declared by the directors, of 405 shares in this company, numbered as follows:—

	Shares.		Shares.
1,657 to 1,676	20	36,428 to 36,447	20
11,997 to 12,046	50	36,448 to 36,497	50
16,451	1	37,063 to 37,087	25
20,897 to 20,906	10	38,691 to 38,780	90
26,170 to 26,193	24	40,818 to 40,847	30
26,214 to 26,219	6	43,765 to 43,768	4
36,288 to 36,297	10	44,847 to 44,871	25
36,308 to 36,327	20	51,811 to 51,830	20

The Chairman having left the chair, it was resolved unanimously—

That the thanks of the meeting be given to Henry Bosanquet, Esq., for his urbanity in the chair this day.

REPORT OF THE BOARD OF DIRECTORS.

The directors have so recently met the proprietors at a special general meeting, to report to them the various measures proposed for the branch and extension lines of the company, that they deem it unnecessary again to enter upon the subject until the decision of the Board of Trade upon the whole of the schemes connected with this railway shall have been announced. The accounts of the expenditure on capital account are appended to this report. The accounts for the past half-year, connected with the traffic, are also annexed, and they show a net profit of 15,459*l.* The directors have, therefore, declared a dividend for the quarter, after the rate of 2*l.* 14*s.* per cent. per annum upon the consolidated stock of the company. The intended opening of the fifty additional miles of railway between Newport, Cambridge, Ely, and Brandon, on the 1st July next, has rendered an immediate and considerable increase necessary to the engines, carriages, and other carrying stock of the company, in order to meet the additional traffic upon this important extension of the line. The orders for that stock have been given. The declaration of forfeiture by the directors of several of the original shares of the company has to be confirmed by the present meeting. Since the last special general meeting, the resignation of T. W. Rathbone, Esq., the deputy-chairman of the company, from the direction, has been received. The great experience of Mr. Rathbone in all matters connected with railways has caused his long connection with this railway to be essentially serviceable to the interests of the undertaking—and he retires, accompanied by the sincere esteem and regret of every one of his colleagues with whom he has so long laboured. The directors have supplied the vacancy in the direction thus occasioned, by the election of F. V. Lee, Esq.

At the present meeting, four directors retire by rotation—viz., Henry Bosanquet, Cornelius Butler, Joseph Christopher Ewart, and William Collings Wells, Esqs.—all of whom are eligible for re-election, in terms of the company's Act of Parliament.

By order of the board of directors, HENRY BOSANQUET, Chairman.

Eastern Counties Railway Office, Feb. 5, 1845.

N.B. The dividends will be payable on and after the 17th February instant.

[*We shall give the Report of Robert Stephenson, Esq., in our next.*]

LONDON AND BRIGHTON RAILWAY COMPANY.

The fifteenth half-yearly meeting was held at the London-bridge Station on Thursday last, Capt. B. M. KELLY, R.N., in the chair.—The report, which was of a most satisfactory character, presented an increased receipt in the last half-year over the corresponding period in 1843 of 15,873*l.*; from this must be deducted 4629*l.*, the increased expenditure, which would leave 11,244*l.* as the net increase on the half-year, to which the further sums of 4549*l.* (being the deficit brought into the Christmas account) and 169*l.* (the reserve from Midsummer last) must be added, showing a larger available balance for dividend to the amount of 15,962*l.* The report further announced, that all the negociations held with the South-Eastern Company had been broken off by the latter; their claims upon that company had neither been admitted and settled, nor had any specific objections been furnished; in this emergency, it only remained for the directors to proceed in the course pointed out by the Act of Parliament, and a letter was accordingly written on the 20th ult. to the South-Eastern board of directors, calling on them to appoint an arbitrator within fourteen days, pursuant to the Act. The report, in conclusion, proposed a dividend of 30*s.* per share, amounting to 52,784*l.*—The various recommendations were unanimously adopted, and the three directors who retired in rotation being re-elected, the meeting separated.

NORWICH AND BRANDON RAILWAY COMPANY.

The half-yearly meeting of the proprietors was held on Wednesday, the 5th inst., at their offices, Guildhall-buildings, ADAM DUFF, Esq., in the chair.—The report congratulated the company on the prosperity of their line—the progress on it being such as to justify the expectation held out at the last general meeting, that the entire railway would be completed in the course of the summer. The directors themselves had, within the last week, personally inspected the line, and they found the works every where (with the single exception of the vicinity of Thetford) in a very advanced state, the directors having actually been conveyed several miles by a locomotive engine; and they trusted that, within the next month, the whole distance, from the Trowse station at Norwich to Rowdham Heath, would be completed. As regards the line near Thetford, the works have been suspended, in consequence of its being determined to make a deviation, which will bring the main line through that town, instead of approaching it by a branch, as originally proposed. This course, suggested by the town, has been approved by the Board of Trade, who thereby recognise the preference of local accommodation to the possible saving of a short time in a protracted journey. The completion of the whole line is fixed for the 1st of next July, and the Eastern Counties having arranged with their contractors for the opening of their line between Brandon and Bishop Stortford by the same time, the railway between Norwich and the metropolis will thus be perfected in a much shorter period than was at first anticipated. With respect to the rejection of the Attleborough and Diss branch, and the postponement of that from Wymondham to East Dereham, by the Board of Trade, the directors advise an appeal to the House of Commons, having no doubt that they will ultimately receive the sanction of the Legislature.—The report was received with approbation by the entire meeting, who unanimously adopted it forthwith.—Resolutions were then put and carried, authorising the directors to extend the present line, so as to bring the terminal station at Norwich into the heart of the city, at a cost of 40,000*l.*, contingent, however, on the rejection by the Board of Trade of the rival lines to Ipswich and Dereham. A motion was also passed, empowering the directors to raise the sum of 126,000*l.*, either by mortgage, or the creation of new shares.—The balance in hand was announced to be 27,1*l.*, and the interest on the calls will be paid on the 24th instant.—Eight directors were elected in the room of those who went out in rotation; and the meeting, having passed a vote of thanks to the chairman and the board, separated.

IMPROVEMENTS IN MANUFACTURING IRON AND STEEL.

[Specification of patent granted to Charles Low, Robinson's-row, Kingsland, Middlesex for improvements in the making or manufacturing of iron and steel.]—*Newton's Journal.*

These improvements consist in the use of the following materials in the manufacture of malleable iron and steel—viz., oxide of manganese, plumbago, charcoal, and nitrate of potash, soda, or lime (preference being given to the ordinary saltpetre of commerce). The above materials are mixed in the proportion of 42 lbs. of oxide of manganese, 8 lbs. of plumbago, 14 lbs. of wood charcoal, and 2 lbs. of saltpetre; and 66 lbs. of this mixture are thrown into the blast-furnace with each charge of ore likely to produce 480 lbs. of metal. It may be introduced, with equal advantage, into the puddling-furnace, when the pig-iron is in a fused state, by throwing a few pounds of it upon the surface of the metal, every few minutes, and thoroughly incorporating it therewith, by stirring, until the 66 lbs. have been used, or until the metal begins to thicken, or "come to nature:" it is then balled, &c., as usual. The mixture may also be employed, in like proportions, for improving the quality of iron in the cupola or other furnace used by founders. Another part of this invention consists in the application of the mixture to the manufacture of cast-steel from malleable iron, which has been made by the above processes. For this purpose 2 or 3 lbs. of the mixture are added to every 30 lbs. of steel, when in the melting pots, during its conversion into cast-steel. Or the object may be more immediately effected by adding the ingredients (in the same relative proportions as for steel) to the malleable iron, made as above; and then the application of a moderate heat will fuse the iron in contact with the mixture, and immediately convert it into cast-steel.

The mixture should be ground previous to use; for the puddling-furnace, it should be brought to a moderately fine powder, and the patentee prefers to introduce it at the top of the furnace, through a hopper or tube, which will spread it more evenly than if distributed by hand through the furnace door; for the blast-furnace and cupola, the powder may be in a coarser state. The patentee says—"I do not claim the exact proportions above described, as they must somewhat vary for different qualities of iron ore and iron, or of the ingredients themselves; nor do I claim the use of any of the aforesaid ingredients separately, as they may have been made use of before; but I claim the use of them collectively, in the manufacture of iron or steel, either in the blast-furnace, puddling-furnace, cupola, or other furnace, or in the melting pot.

SHREWSBURY, OSWESTRY, AND CHESTER JUNCTION RAILWAY.

The inhabitants of the parishes of Wrexham and Rhuabon are under deep obligations to the original promoters of the North Wales Mineral Railway, by which in a short time the varied and extensive treasures of those large parishes will find a ready vent to the ports of Birkenhead and Liverpool—thus giving extensive employment to hundreds and thousands of poor unemployed men, who have for several years past been labouring most patiently and praiseworthily under the deepest distress and want, and creating a vastly increased demand for agricultural produce, by which the occupier will be materially benefitted and assisted in enriching the coffers of the owners of the soil. Not content with conferring these inestimable advantages upon this richly-favoured mineral district, by conveying its coal, lime, freestone, slate, timber, agricultural produce, lead and iron ore, by the speediest method, and at the cheapest cost, to the most important ports of the empire; they are now also projecting the formation of a new and independent line of railway from Rhuabon to Oswestry and Shrewsbury, by the name of the "Shrewsbury, Oswestry, and Chester Junction Railway," by which the inhabitants of Shropshire and the regions round about will also be supplied with the same mineral productions at an almost inconceivable reduction of price, compared with their present cost. It would be almost needless to allude to the superior quality of the Rhuabon coal and lime, which would thus obtain a ready transit to those parts which have hitherto been deprived of them, except at immense cost. The agricultural, architectural, commercial, social, and domestic benefits, which will be conferred upon a large portion of the kingdom by the opening of this line can hardly be appreciated, except by those who have had an opportunity of reading the evidence produced before a committee of the House of Commons during the last session, relative to the vast mineral treasures existing in the district through which this line is intended to pass. To this evidence we would request the attention of all, particularly those who are interested in the formation of railways. It would seem almost needless to add, that this line will be one of very considerable importance as regards the amount of both passengers and goods' traffic which will arise from its being the direct line of communication between South Wales, Montgomeryshire, and Shropshire, with Liverpool, Manchester, and the whole of the north of England. We would finally observe, that the value of this line will be greatly enhanced by the formation of the Birmingham, Wolverhampton, and Shrewsbury line, with which it will form a junction, though it in itself is a perfectly independent line, under the management of a completely different set of directors, whose practical knowledge and experience are of the first order.

RAILWAYS AND PUBLIC ACCOMMODATION.—It has been remarked that England is a nation of grumblers, and its propensity for that characteristic has procured it more social and other advantages than other nations enjoy. The enterprise of capitalists has given the middle and poorer classes speedier and cheaper conveyance than the old coach travelling, yet John Bull tries what more he can "squeeze" out of the companies by grumbling, and, if he can, to get an inside place at outside fares, forgetting, too, that, in the old mode of travelling, he had to encounter wet and wind and provide accordingly—forgetting, too, the cost of construction and of maintenance of railways, and the impositions which they had to encounter in their infancy. Already are the second-class carriages so comfortable, that officers of the Guards travel by them to Windsor, and an increase of comfort would render the first class typical of vacant possession. Let the public, then, unite in voice with the companies, in getting a reduction of the taxes on companies, which contribute about 4 per cent. of their receipts to poor and other taxes, and 5 per cent. to Government for duty—amounting together for the existing fifty-five railways to above 500,000*l.* per annum. Let them direct their grumbling to those iniquities as they have been shown to be, and then cheap travelling and comfort will come at railroad pace.

NEW METHOD OF IMPELLING LOCOMOTIVES.—A patent has recently been obtained by Mr. G. C. Coffin, of Lunaford, Wilts, for certain improvements applicable to locomotive, marine, and stationary-engines. Mr. Coffin's proposed plan is an attempt to introduce the pendulum as a motive agent in machinery. The exterior frame of the engine, which in different engines has different forms, is in this of the form of an equilateral or isosceles triangle. The base of the triangle is horizontal; and the heavy pendulum swings on a horizontal axis, firmly supported on the vertex or apex of the triangle. The pendulum has attached to it a beam, which librates freely round an axis somewhere near to the centre of percussion of the pendulum. The other end of the beam moves up and down a vertical slot, which is placed above the shaft. This beam has a second one attached to it. The one end of this second beam librates freely round an axis in the first. The other end moves up and down a vertical slot placed above the first, and in the same line with it. The second beam has a pall or throw attached to it; and this throw, librating freely round an axis in the second beam at the one end, works with the other into the racked teeth of a pinion fixed on the axis of a wheel. By these means the pendulum communicates a rotatory motion to the wheel. It will be perceived, however, that this motion will be extremely slow; in fact, it requires as many complete oscillations of the pendulum as there are teeth in the pinion, to cause a complete revolution of the wheel. The patentee proposes to remedy this by the common contrivance for increasing rotatory motion. The wheel works into a small pinion fixed on the axis of another wheel. This wheel works again into a pinion fixed on the axis of a third wheel. In this manner the third wheel revolves with increased velocity, and drives the shaft by a belt.

HUNGERFORD SUSPENSION-BRIDGE.—Messrs. Fuller and Marsh sold five 25*l.* shares in this company, at the Auction Mart, on Thursday, for the improving price of 26½*l.* per share. The auctioneer stated, it was now beyond doubt, that the bridge would be opened next month, and it was understood that the directors intended to allow the public to pass over the bridge, toll free, the first month.

COALS AT BLACKHEATH.—It is a commonly-received opinion that coals are to be found as near London as Blackheath, but that the seeking for them is forbidden, on account of the Newcastle coal trade being so excellent a nursery for seamen. But geologists have ascertained that the great coal-field of Britain, which is composed of numerous subordinate coal-fields, crosses the island in a diagonal direction, the south boundary line extending from near the mouth of the River Humber to the south part of the Bristol Channel, on the west coast; and the north boundary line extending from the south side of the River Tay in Scotland, westward, by the south side of the Ochil Mountains to near Dumbarton, on the River Clyde; within which boundary lines North and South Wales are included. This area is about 260 miles in length, and on an average about 150 miles in breadth; and no coal-field of any consequence has been found either to the north or south of the lines mentioned, excepting some small patches of thin coals of inferior quality; and the coal-field of Brora in Sutherlandshire, in Scotland, which is far disjointed from any other coal-field.

LANCASHIRE TURN-OUT COLLIERS.—The turn-outs in the neighbourhood of Wigan continue to be met by the masters with a determination not to be overruled by the Union. At several collieries the hands who struck are still out, and every endeavour is being made to supply their places with men—whether miners, labourers, or others.

LONDON AND COUNTY JOINT-STOCK BANKING COMPANY.

PARENT ESTABLISHMENT, 71, LOMBARD-STREET.

DIRECTORS.

WILLIAM HAWES, Esq., Chairman.

EMANUEL COOPER, Esq., Deputy-Chairman.

William Cory, Esq.	John Cuthbert Joyner, Esq.
William Evans, Esq.	Alexander Rogers, Esq.
John Griffiths Frith, Esq.	Richard Springett, Esq.
Swynfen Jervis, Esq.	Clement Tabor, Esq.

John Wheelton, Esq.

GENERAL MANAGER—Henry Luard, Esq.

At the Annual Meeting of proprietors, held on Thursday, the 6th February, 1845, at the company's premises, 71, Lombard-street, the following report for the year ending the 31st of December, 1844, was read by the secretary:—

W. HAWES, Esq., in the chair. 33

REPORT.

Your directors have again much pleasure in laying their half-yearly report before the proprietors. Your directors are happy to report the business of the Bank continues to improve and to increase, and they recommend the payment of the usual dividend at the rate of 5 per cent. per annum on the capital stock of the company for the half-year ending Dec. 31, 1844. The amount (£2554 15s. 6d.) proposed to be carried to the reserved fund after the payment of this dividend—the expenses of the establishment—the interest on deposits and current accounts—the rebate on bills not due—the allowance for bad and doubtful debts, and the income-tax—exceeds that of any corresponding period since the establishment of the Bank, and with the sum placed to that fund by the meeting in August last, its increase for the year 1844, amounts to £3403 9s. 11d.

The proprietors will recollect, that at the last meeting the directors reported, they had, by a second verdict, maintained their right to hold the scrip of the Royal Mail Packet Company, which had been lodged with them for advances *bona fide* made to Messrs. Colls, the brokers of Messrs. Acraman of Bristol. The assignees of Messrs. Acraman have since applied to the Court of Exchequer for another new trial; and this application having been admitted by the court, a third appeal has to be made to a jury of English merchants, to confirm their previous decision.

Your directors having found that the present head office could not afford the accommodation required by the great increase of the company's business, have obtained the more extensive premises, 21, Lombard-street, to which they intend to remove during the ensuing month.

The members of the board retiring by rotation on this occasion are William Hawes, Esq., Clement Tabor, Esq., and John Wheelton, Esq., all of whom are eligible for re-election, and offer themselves accordingly.

Balance-Sheet of the London and County Banking Company, 31st December, 1844.

Dr.					
Paid-up capital		£161,025	0	0	
Reserved fund		10,172	17	4	— 171,197 17 4
Due to customers on current and deposit accounts					1,231,412 17 9
Gross profits for the half-year carried down					34,493 19 6
					£1,437,104 14 7

Cr.				
Cash on hand	£	264,194	4	10
Securities, discounted bills, &c.		1,113,134	10	3
Bank premises, freehold and leasehold		18,080	6	9
Preliminary expenses, and expenses of establishing branches		17,976	5	9
Current expenses, salaries, rent, and bad and doubtful debts		16,820	4	0
Interest paid on current and deposit accounts		6,899	3	0
	£1,437,104	14	7	

Dr.			
Current expenses, salaries, rent, &c., of head office and branches, interest allowed on current and deposit accounts, rebate on bills not due, and allowance for bad and doubtful debts	28,404	7	0
Half-year's dividend, at 5 per cent., free from deduction for income tax	3,534	17	0
Balance carried to guarantee fund	2,554	15	6
	£34,493	19	6

Cr.			
Gross profits for half-year brought down	£34,493	19	6

We, the undersigned, have examined the foregoing balance-sheet, and compared the items it comprises with the several books and vouchers relating thereto, and have found the same to be correct. (Signed) JONATHAN BARRETT.

London and County Bank, Jan. 24, 1845. JOHN DONKIN.

The foregoing report having been read by the secretary, the following resolutions were severally proposed, and unanimously adopted:—

1. That the report be received and adopted, and printed for the use of the proprietors.
2. That a dividend, at the rate of 5 per cent. per annum, be declared upon the capital stock of the company, clear of the income tax, for the past half-year, payable on and after Monday, the 10th day of February inst.
3. That the balance of £2554 15s. 6d., remaining to the credit of the profit and loss account, be carried to the guarantee fund.
4. That this meeting declares its entire and unabated confidence in the directors of the company, and that its best thanks be given to them for the able manner in which they have conducted the business of the bank during the past year.
5. That the sum of £1500 be placed at the disposal of the directors, for their remuneration for the current year.
6. That the thanks of this meeting be presented to the auditors of the company for the past year.
7. That Jonathan Barrett, Esq., Joseph Henry Warter, Esq., and John Donkin, Esq., be re-elected auditors for the year 1845.
8. That the thanks of this meeting be presented to Henry Luard, Esq., the General Manager, the Inspector, Secretary, and the respective Branch Managers, for the zeal and ability with which they have discharged the duties of their several offices.

The ballot for the election of three directors having been proceeded with, the following gentlemen were unanimously re-elected—William Hawes, Esq., Clement Tabor, Esq., and John Wheelton, Esq. (Signed) W. HAWES, Chairman.

The chairman having left the chair, it was unanimously resolved—

That the best thanks of the meeting be given to William Hawes, Esq., for his able and courteous conduct in the chair. (Signed) EMANUEL HOOPER.

Extracted from the minutes. (Signed) R. P. NICHOLS, Secretary.

LONDON AND COUNTY JOINT-STOCK BANKING COMPANY.

Notice is hereby given, that a DIVIDEND, at the rate of 5 per cent. per annum, on the capital stock of the company for the half-year ending the 31st Dec., 1844, will be PAID to the proprietors, either at the Parent Establishment, 71, Lombard-street, or at any of the company's Branch Banks, on and after Monday, the 10th of February inst. By order of the board,

71, Lombard-street, Feb. 6, 1845. HENRY LUARD, General Manager. 34

PROSPECTUS OF A PLAN FOR IMPROVING THE OUTFALL BELOW LYNN,

AND FOR RECLAIMING FROM THE SEA THIRTY THOUSAND ACRES OF LAND,

PART OF THE ESTUARY, CALLED

THE WASH,

Between the counties of Norfolk and Lincoln.

Capital £500,000, in 10,000 shares, of £50 each.—Deposit £2 10s. per share.

TRUSTEES.

The Duke of Portland.	Earl of Orford.
Earl Fitzwilliam.	Lord George Bentinck, M.P.
Sir Roger Martin, Bart.	William Bagge, Esq., M.P.
Sir Thomas Hare, Bart.	W. W. Chute, Esq., M.P.

DIRECTORS.

The Duke of Portland.	Robert Cooper Lee Bevan, Esq.
Earl Fitzwilliam.	William Eagle, Esq.
Earl of Orford.	Joseph Wilson, Esq.
Lord George Bentinck, M.P.	Charles Muriel, Esq.
Hon. Eliot Yorke, M.P.	George Capron, Esq.
Sir William Browne Folkes, Bart.	Martin West, Esq.
Richard Greaves Townley, Esq.	Joseph Browne Wilks, Esq.
George Bentinck, Esq.	The Mayor of Lynn.
George Pryme, Esq.	Richard Bagge, Esq.

Edward Everard, Esq. 35

(With power to add to their number).

LONDON BANKERS—Messrs. Smith, Payne, and Smiths; Messrs. Barclay, Bevan, and Co.

COUNTRY BANKERS—Messrs. Gurney and Co.; Messrs. Everards and Co.

ENGINEERS—Messrs. Rennie, for the Promoters; James M. Rendell, Esq., for the Town of Lynn.

SOLICITORS—Frederic Lane, Esq., King's Lynn; Thos. Wing, Esq., Gray's Inn, London.

SURVEYOR—Mr. Edwin Durrant, King's Lynn.

PROSPECTUS.

The object of the promoters is to recover from the sea a very extensive tract of land, which now constitutes a part of the great estuary called "THE WASH."

The measure now in contemplation was suggested by the success which has already attended several other works of a similar nature upon the adjoining coasts, by which many thousand acres have been rescued from the overflowing of the sea, and converted into arable and pasture lands of excellent quality.

For the present, it is intended to limit the undertaking to the recovery of 30,000 acres; this will require an expenditure of about £500,000, which, deducted from £1,050,000, the value of the land, will leave to the shareholders a clear gain of £550,000, subject only to the claims and compensations of frontage owners.

The capital of the company will be £500,000, which will be divided into 10,000 shares of £50 each, upon which a deposit of £2 10s. is to be made immediately; but no further deposit will be required until an Act of Parliament, for which application will be made in the approaching session, has been obtained for incorporating the company, and conferring upon it the necessary powers.

But, although it has been thought prudent to make provision for raising £500,000, the estimated expense of completing the undertaking, it is confidently expected that it will not be necessary to call for more than 50 to 60 per cent. of that sum, as large tracts of land will be recovered shortly after the commencement and during the progress of the work, which may be made an available fund for prosecuting the undertaking, or be divided among the shareholders, as may be deemed most expedient. Between 9000 and 10,000 acres of the most valuable part of the land are fit for immediate embankment, and will be wholly recovered within two or three years after the commencement of the works.

Sealed application for shares to be made by letter (post paid), addressed to Frederic Lane, Esq., King's Lynn, Norfolk; or Thomas Wing, Esq., Gray's Inn-square, London, on or before the 17th of February, when the shares will be allotted, and no further application will be received after that day.

Interest, at the rate of 4 per cent., will be allowed on all paid-up capital, from the passing of the Act, until a sufficient quantity of land shall have been acquired to cover the expenses and declare a dividend.

January 30, 1845.

FORM OF APPLICATION.

LEVEL OF THE WASH.

SIR,—I request that you will allot to me shares, of £50 each, in the above undertaking, agreably to the prospectus; and I agree to accept such shares as may be allotted to me, and also to pay the deposit thereon, and to sign the Parliamentary contract and subscribers' agreement when required. Name.....

To Frederic Lane, } Esqs. Residence.....
Thomas Wing, }

NORTH WALES RAILWAY.

Capital £300,000, in 12,000 shares, of £25 each.—Deposit £1 5s. per share.

PROVISIONAL COMMITTEE.

WILLIAM ORMSBY GORE, Esq., M.P., Chairman.

The Right Hon. the Earl of Powis	G. A. Huddart, Esq., of Brynker
The Right Hon. Lord Newborough	David Whyte Griffith, Esq., of Bodegroes
The Hon. Colonel Douglas Pennant, M.P.	Major Bennett, of Rhiu
Thomas Assheton Smith, Esq.	Wm. Bland, Esq., Chesnut House, Chiselhurst
William Bulkley Hughes, Esq., M.P.	E. T. Carver, Esq., Robert-street, Adelphi
Joseph Bailey, Esq., M.P.	Wm. Chadwick, Esq., Montague-square
Rear-Admiral Sir Charles Malcolm	J. J. Kinloch, Esq., Gloucester-road, Hyde park
Sir W. Wynn, Maesyneydd	W. Mitcalfe, Esq., Fitzroy-square
Major-General Sir Love Parry, K.G.H.	James Ramsay, Esq., Bushey House, Herts
Charles Griffith Wynne, Esq., Cefnamwlch	Alexander Ross, Esq., St. Mary Axe
Richard Lloyd Edwards, Esq., of Nanhorn	T. Bridge Simpson, Esq., Leadenhall-street
Major Nanney, of Gwynfryn	
John Lloyd, Esq., Trallwyn	

ENGINEERS—Sir John Rennie, F.R.S.; Thomas Page, Esq.

BANKERS.

London Joint-Stock Bank; Messrs. Williams and Co., Carnarvon; National and Provincial Bank, Bangor.

SOLICITORS.

Messrs. Johnston, Farquhar, and Leech, London.
Messrs. Williams and Breeze, Port Madoc. 36

COMPANY'S OFFICE, No. 3, LOTHBURY.

This line of railway will secure important advantages to the local and commercial interests of North Wales: it will bring into close connexion the city and port of Bangor, and the town and port of Carnarvon.

The line will thence proceed through the great mineral and slate districts of Carnarvonshire, in the vicinity of Snowdon, Llanberis, Nevin, Pwllheli, to Porth Dynllaen in the same county, situated in its chief agricultural district. The whole length of the line is twenty-eight miles. Port Dynllaen is well known as a safe and commodious harbour, possessing great natural advantages, and situated near the extremity of one of the headlands bounding Carnarvon Bay, Holyhead forming the other.

The harbour possesses great advantages, as a harbour of refuge, over every other port on the coast of North Wales, as is proved by the custom-house books of the port, which show that no fewer than 3,315 vessels put in there for shelter during the years 1840, 1841, 1842, and 1843. The commanding maritime importance of the situation will be evident, when it is considered that North Wales supplies nearly the whole world with slate, and that this can be readily shipped at Port Dynllaen from all the principal quarries, including the celebrated quarries of Penrhyn and Dinorwig, under circumstances which will reduce the freights to all parts of the south of Ireland, South Wales, and the south of England, including London and Bristol, to one-half of their present amount. This is a fact undeniable, as not only will a reduction of almost sixty miles be effected in the length of the voyage, but the dangerous bar of Carnarvon, and the hazardous navigation of the Swillies within the Straits will be avoided, and a variety of extra River dues saved.

The copper, lead, and other mines, and the valuable stone quarries at the Rivals, recently opened by a Liverpool company, contiguous to the proposed line of railway, will also have thrown open for their produce this advantageous means of transit to the southern markets, as well as an immediate railway conveyance to those ports in direct communication with Liverpool, and consequently with large foreign markets, as well as those of Scotland, and the northern and midland counties of England.

The population of Bangor and Carnarvon comprised in the electoral districts, together with that residing on either side and extremity in the locality of the proposed line of railway, amounts to upwards of 40,000 persons. The well-known scenery and antiquities of North Wales have long been objects of progressively increasing interest to a very large number of tourists and visitors during the summer and autumn months; at which periods of the year five steam vessels per week run between Liverpool and Bangor; and it is on record, that in one year Bangor was visited by 50,000 persons. Upon this part of the subject it is important to notice that the southern terminus of the line will be directly opposite to the port of Wicklow, whereby travellers will reach in the most direct manner the celebrated scenery of the county of Wicklow, while on this side this railway will facilitate immediate access to the romantic districts of Bethgellert, Tremadoc, Llanberis, and Snowdon.

There are now five public means of conveyance passing daily between Bangor, Carnarvon, Llanberis, Nevin, and Pwllheli, and *vice versa*, carrying on an average 6 passengers each way, which will produce in a year 17,280 persons. There are kept for the purpose of hire, at Bangor, the Menai Bridge, Carnarvon, and other places adjacent to the line, 100 vehicles for public accommodation, which may be fairly computed to convey 3 passengers per day for seven months of the year, going from and returning to places which this line will command, thus amounting to 100,800 persons. Of the population adjoining the line of railway before stated, amounting to 40,000, it may be fairly estimated that those who travel daily on foot, and in their own means of conveyance, exclusive of any additional allowance for market and fair days, will supply a daily sources of traffic equal to 60 persons; and calculating that they will return, they will amount in the year to 34,560 persons. There are two turnpike-gates between Bangor and Carnarvon, the tolls of which for single horse vehicles are 1s., being at the rate of 1½d. per mile. These gates were let last year exclusive of the cost of collection, for £521 per annum.

There are held in different parts of Carnarvonshire, adjacent to this line, more than 40 fairs in the course of the year. The cattle, sheep, and pigs collected at these fairs are now driven to different parts of England, and form the great export of North Wales; and it is but reasonable to suppose that when a railway communication shall be established, that mode of conveyance will be preferred. It is said by Sir Robert Peel on his introduction of the tariff, that the importation of cattle from Ireland increased in 20 years from 17,000 head into all the English ports, to 100,000 head into Liverpool alone. The extensive chain of railways now forming in Ireland, and the completion of the proposed lines of railway between Kingstown and Wicklow, and Waterford and Wicklow, will cause the Irish cattle traffic, which at present enters England by Liverpool and Bristol, to be concentrated on Porth Dynllaen, the sea voyage between Wicklow and Porth Dynllaen being shorter by five geographical miles than by any other ports in the English and Irish Channels; and shorter by one-half than between those ports which now enjoy the Irish cattle trade.

The course of this line by the engineer's report and sections, is exceedingly favourable both as respects gradients and the inexpensive character of the works. The cost of the railway and works, does not exceed £300,000.

The plans, sections, and books of reference, have been duly deposited in the proper departments, and application will be made for an Act in the present session of Parliament.

Arrangements have been made with responsible contractors to complete the railway within the engineers' estimates, both as to time and amount, and thus the sufficiency of the capital is placed beyond a doubt. In preparing the estimate of the returns to be expected, as shown in the traffic table subjoined, the calculation has been based with much care upon the most authentic accounts it was possible to procure. The result is highly satisfactory, and the undertaking offers an eligible field for investment, the clear profits being found equal to 13 per cent. on the capital to be employed.

THE ESTIMATE OF TRAFFIC.

145,000 passengers, during twelve months, passing between Bangor and Carnarvon, at 1s. 6d.	£10,875	0	0
*Doubled, according with Parliamentary usage	10,875	0	0
70,000 passengers, during twelve months, passing to Llanberris Nevin, Pwllheli, Porth Dynllaen, and places adjacent to either side and extremities of the line, at 2s.	7,000	0	0
Doubled, according with Parliamentary usage	7,000	0	0
160,000 tons of slate and mineral, taken per rail for export to Porth Dynllaen and other ports, averaging 2s. 6d. per ton	20,000	0	0
60,000 head of live stock, averaging 1s. per head	3,000	0	0
Carriage of the imports, consisting of the manufactures, and nearly all the necessaries required for the population of the southern parts of the counties of Carnarvon and Anglesea	2,500	0	0
5 per cent. allowed on the amount of passengers' traffic for parcels	1,787	10	0
The same for carriages and horses	1,787	10	0
No credit is taken for the traffic of Irish cattle, or on the produce of the stone quarries, though it is obvious the same must be very considerable	—	—	—
	£64,725	0	0
Deduct 40 per cent. for expenses	26,690	0	0
Leaves a clear profit of	£38,035	0	0

More than 12 per cent. on the capital required.

* *Note.*—In making out traffic estimates, it hitherto has been customary to assume that the present number travelling by coach, &c., would be doubled by the construction of a railway; accordingly, it has been deemed advisable not to depart, in the present instance, from the usual Parliamentary practice, although experience has shown that, on every important railway, the passenger traffic has increased in a far greater proportion. The Irish Railway Commissioners, in illustration of the fact, state that the Stockton and Darlington Railway increased the passenger traffic from 4000 to 16,000, the Bolton Railway from 15,000 to 125,000, Newcastle and Carlisle from 33,000 to 125,000, Dundee and Newtyre from 4000 to 50,000, Liverpool and Manchester 146,000 to 500,000, Brussels and Antwerp 75,000 to 1,200,000.

Since the Commissioners made their report, the Birmingham, Grand Junction, and Great Western Railways have been completed, and the result shows that their passenger traffic has increased in the proportion of four to one. Nor is the accession of traffic arising from tourists in this district to be underrated. The Irish Railway Commissioners, in speaking of railways of this description, observe, "Among the inducements which we may notice as holding out a prospect of support for such undertakings, are to be mentioned, "the numbers from all parts of the United Kingdom, and even the continent of Europe "who would resort to Ireland as travellers to view the natural beauties of its splendid and "varied scenery, and some, no doubt, to acquire a more perfect knowledge of the character and condition of the people. The line which we propose to Cork passes within a "morning drive of Killarney, and through a highly picturesque country besides; and should a railway be completed to Holyhead, or some other port in North Wales, the tourist will then have an opportunity of passing through the magnificent mountain scenery of Wales, and visiting the most remarkable places both in the North and South of Ireland, at a moderate expense, and in a few days. To many, the saving of time will be a much more valuable consideration than a reduction of expense, though the latter will, of course, operate as a strong inducement to numbers; and we have no doubt that a considerable accession of traffic will be derived during the summer and autumn of every year from this source."

Application to be made for shares, on or before the 15th of February next, addressed to the Provisional Committee, or to Henry Archer, Esq., the secretary *pro tem.*, at the company's offices, 3, Lothbury, London, Williams and Breese, solicitors, Port Madoc, or the undermentioned brokers:—Mr. John Hall, Liverpool; Mr. Anthony Laurie, Liverpool; Mr. Isaac Miller, Liverpool; Mr. Parsons, Liverpool; Messrs. Brady and Staniforth, 11, Manor Street, Hull; Mr. S. Grindrod, Manchester; Messrs. Cardwell and Co., Manchester; Messrs. Watson and Co., Leeds; Messrs. E. King and Co., Leeds; Messrs. Samuel Hutchinson and Co., Bradford; Luke Arnold, Bristol; George Edwards, Bristol; Boyle, Low, Pim, and Co., Dublin; Bruce and Symes, Dublin; of whom prospectuses may be had.

FORM OF APPLICATION FOR SHARES.

To the Provisional Committee of the North Wales Railway.

GENTLEMEN,—I request that you will allot me shares, of £25 each, in the proposed North Wales Railway; and I undertake to pay the deposit and sign the necessary deeds. Dated this day of 1845.

Name.....
Residence.....
Reference..... Trade or profession.....

NOTICE TO INVENTORS.—OFFICE FOR PATENTS

OF INVENTIONS AND REGISTRATIONS OF DESIGNS, 14, LINCOLN'S INN-FIELDS.—The printed INSTRUCTIONS gratis, and every information upon the subject of PROTECTION for INVENTIONS, either by Letters Patent or the Designs Act, may be had by applying personally, or by letter, pre-paid, to Mr. Alexander Prince, at the office, 14, Lincoln's Inn-Fields. 37

LONDON AND BRIGHTON RAILWAY COMPANY.—

At a Meeting of the proprietors of the London and Brighton Railway Company, held at the London Terminus, on Thursday, the 6th day of February, 1845,

Captain B. M. KELLY, R.N., in the chair.

The advertisement convening the meeting was read, as well as the advertisement making the meeting special for certain purposes.

The register of proprietors having been produced by the secretary, the common seal of the company was affixed thereto by the chairman.

The report of the directors was then read, and the following resolutions were passed:—

That the report now read be received and adopted.

That the directors be empowered either to proceed to Parliament in the present session for all or any of the branch lines to Wandsworth, Dorking, and Horsham, or to postpone such application to a future session, as to them shall seem most advisable; and that in case no Act be obtained in the present session for any of such branches, the expenses already incurred, and which may be incurred, in reference thereto, be paid out of the general funds of the company; and that so much of the 6th clause of the second resolution of the special general meeting, held on the 9th January last, as refers to such expenses, be, and the same is hereby, rescinded; and that the directors have power to enlarge the time for applications for the sixth shares, mentioned in the 3d clause of the second resolution passed at such meeting, and to reduce the deposit to be paid thereon, and to determine what sums shall be called upon such shares.

Resolved,—That a dividend of 30s. per share, from which the income tax will be deducted, be, and it is hereby declared, payable on and after the 24th inst. 38

That Charles Pascoe Grenfell, Esq., be, and is hereby, elected a director, in the room of William Nash, Esq.

That Sir John Simpson and Edward Crowley, Esq., be, and they are hereby, re-elected directors of the company. B. MARWOOD KELLY, Chairman.

That the thanks of this meeting be given to the chairman and the board of directors.

C. R. MACKENZIE, Secretary.

ESSEX AND SUFFOLK RAILWAY COMPANY.

Capital £750,000, in 30,000 £25 shares.—Deposit £2 per share.

Provisionally Registered, pursuant to 7 and 8 Vic., cap. 110, sec. 4.

PROVISIONAL COMMITTEE.

Aldham, Richard, Esq., Foxheath Hall, Essex
Allen, Robert Alfred, Esq., Ballingdon Grove, Essex
Bevan, Robert, Esq., The Bank, Sudbury and Bury, and Rougham, Suffolk
Brown, Stephen, Esq., Market Hill, Sudbury
Churchyard, John, horse hair manufacturer, Long Melford, Suffolk
Freeland, Rev. W. Coyte, Rector of Chilton
Green, John, Esq., Lavenham
Harding, Charles, Esq., Great Henny, Essex
Hitchcock, Thomas, woolstapler, Lavenham
Jones, Thomas, Esq., alderman, Sudbury
King, Isaac, Esq., Wickham Hall, Essex
Mason, Maurice, Esq., Sudbury
Mumford, George, Esq., Lavenham
Murray, Alexander, Esq., Eriswell Mildenhall, Suffolk.
Musgrave, William, merchant, Sudbury
The Mayor of Sudbury
Pattison, Captain, Maldon, Essex
Peck, William, Esq., Lavenham
Pratt, Benjamin, Esq., Sudbury
Pratt, Thomas, Esq., Otten Belchamp
Raymond, Samuel Milbank, Esq., Belchamp Hall, Essex
Raymond, Rev. Oliver, Rector of Middleton and Bulmer
Rogers, P., Esq., Ivy Hill, Margaretting
Sikes, John, Esq. Sudbury
Sperling, George, Esq., Attwood's, Halstead
Tatham, Thomas James, Three Ash Althorne, near Maldon, and Bedford-place, London
Turner, Thomas, woolstapler, Lavenham
Stewart, P. Esq., York-terrace, Regent's-park
Walker, George, Esq., Over Hall, Guestingthorpe
Wright, William, Esq., Eyston Hall, Essex

BANKERS.

Messrs. Barclay, Bevan, and Co., Lombard-street.
Messrs. Strachan, Sir J. D. Paul and Co., Strand.
Messrs. Oakes, Bevan, and Co., Bury and Sudbury.
Messrs. Sparrow and Co., Maldon and Halstead. 39

SECRETARY—Robert Mapletoft, Esq., Stansted, Suffolk.

SOLICITORS.

Messrs. N. Stevens and Fearon, 1, Gray's Inn-square, London.
Mr. G. W. Andrews, Sudbury.

LOCAL AGENTS.

Messrs. Sperling and Harris, Halsted.
Henry Jackson, Esq., Braintree
Wm. Codd, Esq., Town Clerk, and Messrs. Crick, Maldon.

The proposed line (which has been long projected, and is now brought forward on the rejection of the Norwich and London Direct Railway by the board of trade) will communicate with the Eastern Counties Railway at or near Hatfield, and will not only form the most direct and perfect communication between the populous towns of Bury, Lavenham, Long Melford, Sudbury, Halsted, Bocking and Braintree, and the metropolis, but if continued to Thetford, be the shortest line from Norwich to London, preserving the old coach road, and thus averting the ruin of existing interests which must follow upon a diversion of the present traffic. It will also, by a branch to the town and the port of Maldon, open a communication between the inland districts of Essex and the sea, thus affording the greatest possible amount of accommodation to the district through which it will pass. Instead of passing through a thinly inhabited district, as is the case with the London and Norwich direct line, this railway will accommodate a population of upwards of 130,000 souls, seven market towns, and three boroughs, returning each two members to parliament. The traffic, independent of passengers, will be much assisted by the large quantites of beasts, sheep, &c. dead meat, and poultry, annually sent from the entire district to the London markets. The lines do not interfere with any ornamental property, there are no engineering difficulties, and the total cost is not expected to exceed £13,000 per mile. The existing traffic is sufficient (after deducting 40 per cent. for maintenance of way, working power and other expenses) to pay a return of 6 per cent. on the capital, without taking into calculation the great addition that may fairly be anticipated by the import and the export of timber, coal, coke, chalk, lime and slates, and of corn, wool, and other general merchandise, from Maldon into and from the manufacturing districts of Braintree and Halsted, and the whole of the agricultural interior of Essex.

A portion of the shares will be reserved for the shareholders in the London and Norwich direct line, in the event of their acquiescing in the decision of the board of trade.

Preliminary prospectuses may be had of the solicitors and local agents and the undermentioned brokers:—D. M'Neil, Esq. 2, Angel-court, City; Messrs. Greaves, Liverpool; Cardwell & Sons, Manchester; Collinson & Flint, Hull; and James Jamieson, Leeds; to whom applications for shares, in the usual form, to be accompanied by a reference, are to be made.

SAMBRE AND MEUSE CENTRAL RAILWAY.

We drew the attention of our readers to this line, as also to a competing one, distinguished as the "Western Line," in our last Number. We have since sought for further information on the subject in Belgium, and our Brussels correspondent distinctly states, that the Central Line has the unanimous support of the whole population of the country through which it passes, and that every town and village in its route will petition the Legislative Chambers in its favour, and remonstrate against the grant of a concession to the competing or Western Line. We present our readers with the summary of the relative merits of the two undertakings furnished by our correspondent:—The Western Line, which only skirts the mineral district, has its terminus of departure at Marchiennes-au-Pont, where it joins the States Railway, ascends the valley of the Eaux d'Heure as far as the summit, and then ascends the valley of Virour to Vireux, which is its terminus of arrival. The Central Line has its terminus of departure at Charleroi, the central point of the collieries, blast-furnaces, and other establishments for the manufacture of iron, ascends a gradient of 1 in 43½ to gain the table land, along which, in passing through the centre of the iron ore district, it proceeds without any engineering difficulties as far as Vireux, where it descends by a gradient similar to that which it had ascended. It has its terminus of arrival, like the Western, at Vireux, but after a course shorter by more than six miles. The capital demanded by the Western Line is 620,000*l.*—that required by the Central Line is only 420,000*l.*, and the tariff or tolls stipulated by the Central Line is one-third less than those demanded by the Western.—The following is the translation of an article which appeared in the Journal *Meinorial* of the Sambre and Meuse, relative to them:—The commune of Dampreney and Roux have just petitioned in favour of the execution of the project of the railway, Taylor. The Common Council of the town of Charleroi, and the persons of distinction of the neighbourhood, have done the same. Chatelemean, Chatelet, and Cinillet, imitating the example of Lodelinsart, Gilly, Marconelle, and Montigny-sur-Sambre, also make their reclamations to the legislative power to the same effect. All our district is in movement. There is not one of our manufacturers, not one of our merchants, who is not convinced of the numerous advantages which would accrue to the country from the adoption of the Central Line. In a few days, the Coal Committee of the Charleroi basin, and the Chamber of Commerce of the district, will, undoubtedly, pronounce on this interesting question—and if, as all announce, at present, their opinion is favourable to the project, Taylor, it would be curious to see the Government force on the industry a communication which it rejects, and that, because the obstinacy of engineers, joined to the transactions of the Stock Exchange, and the speculation of a few individuals, call for the construction of it.

The following is the translation of another article:—Messrs. J. Permey and Dumont, representatives of the administrative district of Charleroi, have expressed their decided opinions in the committee (sections) against the project tending to consecrate the principle of the guarantee of a minimum of interest. We congratulate our two honourable representatives for having so comprehended the interests of their constituents. The project of the railway, Taylor, having been once brought forward, no one can understand that so exorbitant a privilege as that of the Western Line can be granted to speculators, who, after all, have only their private interest in view, and not the general good. At the next election, we shall see our neighbourhood express its gratitude, in returning again to the Chamber the same representatives.

ELECTRIC TELEGRAPH.—The vast importance of this great invention was strikingly exemplified last Tuesday, when Messrs. Cooke and Wheatstone transmitted the Queen's Speech to Gosport, eighty-eight miles, by means of the telegraph, in the incredible space of two hours—the Speech contains about 3600 letters, and was printed off as it arrived, being at the rate of about 300 letters a minute! Had the distance been the Land's End the time occupied would have been the same.

COLLEGE OF CHYMISTRY.—At a MEETING of the Provisional Council of the College of Chymistry, held on Tuesday, the 14th of January inst. (the Marquis of Downshire in the chair), a COMMITTEE was appointed to ORGANISE the INSTITUTION and prepare its Laboratory, and for other purposes connected therewith.—Prospectuses and full particulars may be obtained at the office, No. 7, St. Martin's-place, Trafalgar-square, London.

Life subscriptions, £10 10s.—annual, £1 1s.—A list of subscriptions will shortly be published. JOHN GARDNER, M.D., Provisional Secretary.

January 18, 1845.

STRASBOURG AND PARIS RAILWAY.

Capital 60,000,000 fr., or £2,400,000, in 120,000 shares, of 500 fr., or £20 each.

Deposit £2 per share.

Prospectuses will be duly issued; in the meantime applications for shares may be addressed to the provisional committee, at the office of their solicitor, George Ogle, Esq., 4, Great Winchester-street, Broad-street, London.

NOTICES TO CORRESPONDENTS.

The parcel from Redruth reached us too late to be attended to in our present Number.

We this morning received a detailed report of the interesting proceedings at the entertainment given to Mr. Neilson, the inventor of the hot-blast, in the Town-hall, Glasgow, and to which we shall more particularly refer in our next.

We are indebted to the Editor of the *Penrance Gazette* for supplying us with proof slips of the important Meeting of the Mining Interest at Truro.

THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, FEBRUARY 8, 1845.

The meeting which took place yesterday week at Truro, pursuant to advertisement (fully reported in another column), was very well attended, from 80 to 100 being present, most of whom were connected with the mining interest of the county of Cornwall. In addition to four Representatives, there were present upwards of twenty magistrates, and also the agents of several of the principal mines, with Mr. MICHAEL WILLIAMS, Mr. HUMPHRY WILLYAMS, and others, representing the smelting interest. Our report will be found to give the main points which were presented, and we shall take an early opportunity of giving our opinion on the subjects discussed.

One word or two as to the meeting, which we consider to be a failure, if it is to be supposed as representing the interests or the feelings of the county. The meeting, as the advertisement expressed, was with the object of receiving a communication from Sir C. LEMON, on subject of the correspondence between that gentleman and Mr. GLADSTONE, noticed in our last week's Number; but never was there so great a falling off—all seemed afraid to speak, or to express those sentiments which were so openly bruited out of doors. Sir C. LEMON adverted, and no more, to the correspondence; and he made out a case to prove, that the Cornish mines had nothing to fear—that foreign ores could not be smelted in France or the United States—and he entered into much statistical matter in proof. Mr. TREFFRY, in like manner, with all honesty of purpose, stated to the meeting what had been done by the former committee appointed, and further entered into the statistics of mines, the past and present; but, with all, neither the one nor other took up the question boldly. It appeared to us that they were shackled—that they were, to adopt vulgar phraseology, "gagged," but why or wherefore, we are at a loss to know. Sir CHAS. LEMON has been considered as the advocate of the mining interest, and as the miners' friend—Mr. TREFFRY's position is too well known to admit a doubt as to the honesty of intention on his part; but there was evidently a something which was not developed at the meeting.

One point, and that we consider important in itself, was raised by Mr. KENDALL; and we hesitate not to say, that with all the good wishes on the part of others who were present, he was the only one who boldly stood forward as the advocate and supporter of the miner. Let it be understood, that in speaking of the mining interest of Cornwall, we look to the well-doing of the working miner, while we would uphold the adventurer, and, if the one goes down, the other must follow. Mr. KENDALL boldly expressed the opinions he entertained, and adhered to them, while he received no support in any one quarter, although we believe, from conversations with many parties, that his opinions were accorded with by a majority of those present—yet, notwithstanding the cheers which attended his observations, "One and All," if they did not refuse, at least neglected, to support him. The remarks made by that gentleman were so much to the point, that we prefer noticing them to the statistics of Sir C. LEMON and Mr. TREFFRY, the former of whom, we think, proved the case of the free trader and the foreign miner, instead of the Cornish or home miner—"for (said he) do what they will, they cannot smelt with equal advantage in other countries, therefore the ores must necessarily come here." We are afraid Sir CHARLES speaks too quick, and that he does not reflect how his expressions or arguments may be adduced against him and the cause he is anxious to support—while Mr. TREFFRY, we regret to say, was too tame, although we give him every credit for his intentions.

However, to recur to the observations of Mr. KENDALL, it is only necessary to advert to the opinion he expressed as to the appointment of Mr. MICHAEL WILLIAMS on the committee, which he said, and with great propriety, was a perfect anomaly. The meeting was called by the miners, to protect themselves from the fangs of the smelters, and from the foreign miner, or capitalist embarking in foreign mines; and how absurd must it appear to all that they should nominate as a member of the committee a gentleman who at the meeting avowed he was more largely interested in smelting than in mining—indeed, all who know that gentleman's position will be ready to admit this. We entertain the highest opinion of Mr. MICHAEL WILLIAMS, but we agree with Mr. KENDALL that he was not the man to be on the committee, which was composed of only five, among whom was Mr. JOHN TAYLOR, and for whom we have a high respect, but who, we have no hesitation in saying, was not one of the most strenuous advocates in support of the Cornish miner on a former occasion. Thus, we have on the committee two gentlemen who we think ought not to be there, but whose election may possibly have some reference to *election* matters. Mr. TREFFRY is too well known not to be duly appreciated—while Mr. ALFRED FOX, as a man of business, and no slight ability, with Mr. JOSEPH CARNE, who requires no eulogium on our part, make up the list. Take the last three, say we, and we think the miner would have fair play; but we can hardly conceive that the smelter will work against his own interest, and that of his co-smelters, and that a gentleman, however highly respectable in his standing in society, as that of Mr. JOHN TAYLOR, will, because the United Mines, or other concerns with which he may be connected, and which are affected, and that seriously, by the depreciation in the standard, change the sentiments he before entertained, and, if we mistake not, avowed on more than one occasion.—We shall have occasion again to remark on the course pursued in Cornwall, which is one we could not have expected would have been adopted by the Cornish miner; but, perhaps, there is "a wheel within a wheel," and all may yet be for the good. We can only say we wish it. For ourselves, we should, if placed as a majority of those present were, have expressed ourselves openly, and that somewhat differently.

[FROM A CORRESPONDENT.]

By reference to papers which have been just prepared for both Houses of Parliament, expository of the operations of the new Tariff, we find that among the articles designated under Class A of the sixth schedule, as imported in a raw state to be used in manufactures, metals occupy a prominent position. It appears that for the year ending Jan. 5, 1839, there was retained for home consumption of copper, from British possessions within the limits of the East India Company's Charter, ¼ ton; and in the corresponding period of 1845, 4¼ tons—the net amount of duty received in 1839 being 4*l.*, and the rate chargeable 1*l.* per ton of ore. Of copper ore otherwise imported, the home consumption for the year ending Jan. 5, 1839, was ½ ton; for the like period in 1841, 1 ton—the net amount of duty in the former year being 6*l.*, and in the latter 17*l.*; the rate chargeable to July 9, 1842, was 12*l.* per ton. Of that imported from British possessions, the amount retained for home consumption in 1844 was 40 tons, and for duty 15 tons, the net impost received being 16*l.* or at a rate of about 1*l.* per ton. Of the copper ore imported from foreign countries, containing not more than 15 parts of copper in the 100 parts of ore, the quantity retained for home consumption was in the year ending July 5, 1843, 11,203 tons; and in the corresponding period of 1844, 13,502 tons—that left for duty being 1405 tons in 1843, and 1670 in 1844, paying a duty in the former year of 4425*l.*, and in the latter of 5625*l.*, or at the rate of 3*l.* per ton. Of the ore containing not more than 20 parts of copper, in 1843, the home consumption was 11,357 tons; and in 1844, 12,681; reserved for duty, 1844 tons in 1843, and 2114 in 1844—paying an impost of 8712*l.* for the previous, and 9989*l.* for the subsequent period, being therefore chargeable at the rate of 4*l.* 10s. per ton. Of that which was retained for home consumption, containing more than 20 parts of copper, the amount was, in 1843, 19,648 tons; and in 1844, 30,064 tons—the quantity for duty being in the preceding year 5376 tons, paying a sum of 33,866*l.* to the revenue; and in the succeeding year 8535 tons, for which a net amount of duty was received of 53,772*l.*, or at the rate of 6*l.* per ton.

A similar increase is observable in the year ending 1844 in almost all other departments—those of timber, tallow, and wood, presenting an income of 1,043,466*l.*; of timber partially manufactured, 513,769*l.*; of silk, 246,111*l.*; and of butter, coffee, corn, currants, raisins, sugar, spirits, tea, tobacco, and wine, 19,614,116*l.*

It is impossible to overrate the importance and interest attached to the proceedings which have taken place during the present week in the House of Commons in regard to the subject of railway legislation generally. It is easy to foresee, that, during the session of Parliament which has just commenced, the manner of dealing with those great arteries of communication must form the prominent topic of discussion. Two hundred and forty schemes and projects connected with railways have, according to the statement of Mr. GLADSTONE, been submitted to the Board of Trade since the last meeting of Parliament—and, whether we consider the interests of the parties immediately concerned in these projects, or the welfare of the country generally, as affected by them, no subject can be of greater importance, or demand from the Legislature a more careful or serious consideration.

Much as we are adverse to the interference of Government in matters affecting trade, we readily admit that cases may occur in which such interference may be absolutely necessary for the interests of all parties. If, in the present plethoric state of the money market, every projected scheme would be allowed to proceed without opposition, we should before another year have a panic in the country—a hundred railways, perhaps, left unfinished, that would never pay if completed—some thirty millions sterling absolutely sunk—and tens of thousands of unfortunate shareholders reduced to total ruin. Let those who consider this an exaggerated picture remember the scenes that took place in 1825. We think, therefore, that some check is necessary on the rage of speculation in times like the present, when there is an extraordinary abundance of money.

In regard to the matter under our more immediate notice, we feel bound to say, that the decisions—or, rather, recommendations—of the Board of Trade have in general given satisfaction to the country—the interests of the old companies have not been materially interfered with, except in such cases where the public interests manifestly required it; as a matter of course, the disappointed parties complain loudly, but it would be unfair to criticise the judgment of the Board in any particular case till their report is laid on the table of the House of Commons. There is, however, one matter connected with the decisions of the Board which requires the closest investigation on the part of Government—we allude to the fact of the sudden rise in the price of shares favourably reported, previous to the announcement in the *Gazette*. Mr. WAKLEY stated in the House of Commons, on Thursday night, that one party alone in the City netted 40,000*l.* in the course of a few hours by means of such information. The subject cannot be allowed to rest here.

We are most happy that Government have declared their intention of keeping a strict neutrality in regard to the recommendation or disapproval of the different projects submitted to the Board of Trade. This is as it should be, and we feel satisfied that no committee of either House will allow itself to be unduly influenced by any opinion emanating from the Board of Trade. We have treated this subject at greater length in another column, and will in our next revert to it again.

The notice in the QUEEN'S Speech of the encouragement to be given to the investment of capital in Irish railways has had a good effect on the shares. The last quotations of the Great Southern and Western (Dublin to Cashel) are 6*l.* 10s. pm.; Belfast and Ballymena, 3*l.* 10s. pm. The allotment of shares in the Coleraine, Armagh, and Portrush Company, takes place next week. We believe this will be one of the best paying lines in Ireland. There is no part of the country so densely populated as that through which the projected line is to pass, and Portrush, one of the termini, is an excellent harbour, and nearer to Glasgow than any other in Ireland. Nothing will give us greater pleasure than seeing the benefits of railway communication extended to all parts of Ireland that will afford a fair return to the speculator. We shall shortly complete our notices of the different railway projects in the south, east, and west, of Ireland.

PITMENS' STRIKE.—It will be remembered, that, a short time since, four of the pitmen in the employ of Mr. Mitcheson, the agent of Mr. Sparrow (of Langdon), were charged before the county magistrate for refusing to work at the Milfield Pit, and sentenced to two months' imprisonment with hard labour in Stafford gaol. Against this sentence the prisoners appealed, and, after a protracted hearing of the case, Mr. Justice Wightman, on Monday last, decided in favour of the men, on account of informality in the warrant, and a defect in the return to the writ of *habeas corpus*; the prisoners would, of course, be liberated immediately. In noticing the above decision, we have only to express our earnest hopes, that the accident by which these misguided men have been released will not harden, but rather caution, them, and that the punishment they have so narrowly escaped will be a warning, salutary and lasting, how they connect themselves with a course at once mischievous and lawless—a persistance in which must eventually entail disgrace and punishment on the offenders, as well as the most pernicious effects on their employers, and the entire district. At the same time, we cannot but remark, that the practice of engaging middle men to treat with the men is one great source of all the discontent in these districts. These agents are allowed a certain price for procuring the accomplishment of so much work; it is, therefore, their manifest interest to give as small a remuneration as possible to the workmen they employ, who, being in reality often thus aggrieved, have recourse to the most disastrous means to obtain redress. We trust the subject will be looked to, and the evil speedily removed.

HOT-BLAST PATENT.—An entertainment has been given to Mr. J. B. Neilson, the inventor of the hot-blast process, by his partners, to testify their admiration of his genius as an inventor, and their respect for him as a gentleman. The dinner took place at the Town Hall, Glasgow, on Saturday, and was attended by about eighty gentlemen, the Lord Provost in the chair, supported by Lord Belhaven, Sir J. Campbell, Mr. Rutherford, the Lord Rector of the University, &c.

PRESERVATION OF TIMBER.—Mr. Toplis recommends the introduction into the pores of timber of a solution of sulphate or of muriate of iron; the solution may be in the proportion of about two pounds of the salt to four or five gallons of water.

THE LATE BOILER EXPLOSION.

From the evidence of Mr. Fairbairn, C.E., and manufacturer of the *Irk* engine, given at the inquest on Monday last, we gather the following particulars relative to the cause of the explosion:—On examination of the fire-box, the copper was found not only perfectly sound, but free from all cracks or flaws whatever—the discoloured appearance of the plate, which indicated an old fracture, being accounted for by the nature of the rupture where it first gave way, and where it was ultimately forced down upon the front of the tubes; the tearing would be instantaneous on the weaker sides, and the rupture of the two other sides, which form the rectangle of the fire-box, would be equally rapid, and thus cause the apparent existence of an old crack, which on examination is proved impossible.

Over the metallic cover of the fire-box are seven iron stays, extending longitudinally, themselves 4¾ inches deep in the middle, by 1¼ inch thick, and riveted with seven three-quarter bolts through the copper cover, of three-eighths of an inch thick. Supposing, then, these malleable iron stays supporting the roof of the fire-box to be subjected to a given strain, and that the pressure is uniform, and taking each as equal to a beam whose bearings are 3 ft. 4 in. asunder, we have a compound beam of malleable copper and iron with a force of 20·7 tons as the breaking weight, uniformly distributed over the surface. This calculation is made, however, on the supposition that each of the bars was subjected to a separate strain, whereas they are connected by the union of the flanges, thus giving a resistance in every direction to the internal pressure from above; if, therefore, each separately resists a destroying incumbent force at 20 tons, the ultimatum pressure will be 140 tons, and, supposing the union of their lower flanges of solid copper to give double strength, the correct resisting force of the top would be 280 tons. Now, 60 lbs. on the square inch would give 43·35 tons acting on the top of the fire-box, and hence would follow a pressure of 387·6 lbs. upon the square inch, which would be required before the top of the fire-box and its supports could give way. A further proof of the strength of this part will be by reckoning the tensile force of the copper at 20 tons, and the resisting force of the rupture on one side will be about 310·8 tons; to force down the top of the fire-box, therefore, a force of 310 tons would be required, and to break the iron stays supporting the cover an equal force of 280 or 300 tons.

To account for the projection of the engine to the enormous height of thirty feet, remembering the weight of the body (15·5 tons), and the laws of gravitation, which would require a momentum of 1,520,041·6 lbs., or 678 tons, with which it would impinge upon the ground, this must be divided by 1619·5, the area of the fire-box in square inches, and we shall have the enormous pressure of 939 lbs. upon the square inch, being a pressure more than double the strength of the fire-box, which would give way at between 250 to 300 lbs. The additional force must have been generated by the intensely heated water and steam rushing upon the fire at a considerably higher temperature, and the calorific effects would be proportional to the pressure of the steam at the time when the rupture occurred.

Viewing the circumstances in all their bearings they appear to bring themselves under two consideration:—First, that the top of the fire-box was forced down upon the furnace by excessive pressure, arising probably from the accumulated force of the steam having no outlet through the safety-valves; and secondly, by a process of inductive reasoning, from the force of a body of water and vapour, at a high temperature, being discharged upon the evolving gases and glowing embers of the furnace, whereby the carburetted hydrogen and carbonic oxide gases were discharged, with their equivalents of oxygen, and explosion ensued.

Such is the information, able and valuable, afforded by the evidence of Mr. Fairbairn, and which was fully confirmed by the subsequent statement of M. Beyer, a German of talent, resident in Manchester. After a prolonged inquiry, the jury (who we regret were not more effectually watched, and prevented from the improprieties they appear to have practised during their consultation) returned a verdict expressing an opinion that there was a flaw in the copper plate, therefore laying a deodand of 500*l.* on the engine.

The brig *Mary Stewart*, Capt. Renwick, belonging to G. Marshall, Esq., sheathed by the Galvanised Iron Company in March last, has just returned from Ichaboe, on the coast of Africa, where she lay three months, as Capt. Renwick states, in very foul water. On removing part of the patent galvanised iron sheathing, it is found to be perfectly free from the slightest oxidation of the iron, and the coating of zinc upon the iron, when rubbed with a little sand, resumes its original brightness; even the nail holes, which were punched after the coating of zinc was laid on the iron (according to Sorel's process), do not exhibit the slightest oxidation; a little rust had collected round the heads of some of the nails, but it was found, on removing some of the sheets, to proceed from the common ungalvanised nails with which the felt or paper had been attached to the ship, and, on applying the slightest friction, it brushes off, leaving the sheathing nail as perfect and free from rust as when it was driven into the ship's bottom.

IMPROVEMENT ON THE ARCHIMEDIAN SCREW PROPELLER.—Our attention has been called to a notice in a French print of a suggestion which promises very confidently to improve—or, at least, to modify considerably—the above invention, hitherto regarded as the very perfection of steam navigation. In the first place, the inventor premises his remarks by expressing a belief, that, sooner or later, the propeller will be superseded by wheels placed horizontally, and it is to the fuller accomplishment of this that the present propositions are advanced. The improvement consists in substituting the fluted barrel, and the endless cord passing through the various arches of the cylinder, and returning at the point of exit by means of reverse pulleys, by surrounding very simply the two barrels of transmission (in making use of the barrel of tension), with a strap of sufficient breadth—say, three or four centimetres wide—proportionate to the power of the machine, by which means the slipping of the strap on the barrels will be avoided, whilst the power is perfectly transferred. At first sight, this certainly appears to be a very ingenious application of a well-known principle in mechanics to locomotive-engines. The subject at the present moment is more particularly interesting, as the original invention has, within the last few weeks, excited more attention than even the many stupendous designs which have preceded and originated it.

ATMOSPHERIC SYSTEM OF M. HALLETTE.—In the *Moniteur Industriel* we observe the following paragraph from the letter of a correspondent:—"We ought to inform our readers that the system of M. Hallette gives us all that it promised, all that was expected. At Arras, in the establishment of the inventor, it has been tried, and verified, after having been calculated in every way, with the desire of fully testing its qualities, and to all questions of doubt, to all objections, we now find a satisfactory and complete answer. Within these few days, the railway has also been examined by a committee of roads and bridges, and it will now be studied by M. Arago, who though an inventor himself, frequently facilitates the adoption of the designs of others. The judgment of M. Arago, and of the committee, on M. Hallette's system, is not known at present, for they are not men to be contented with a little, but these results are, however, clear—we travel quietly, and with the greatest safety, at much less cost than by the ordinary system. The approbation of these gentlemen is, therefore, more than probable.

CONTINENTAL LOCOMOTIVES.—We learn, by the *Industriel Alsacien*, that the locomotive-engines on Meyer's principle are getting into very general favour. Our readers will recollect the extract that we published some time ago from a report of the Société Industrielle de Mulhousen, giving an account of the different improvements made by Mr. Meyer in the first of his locomotives. Subsequently, we (*Industriel Alsacien*) published a table of the consumption of fuel by the engines on the Paris and Versailles Railway (left bank), very favourable also to another engine on the same system from the establishment of Messrs. Meyer and Co. At the request of a committee of distinguished civil engineers of Paris, this engine was also employed on the Paris and Orleans Railway; and, after many months of experiment, it was always found to occupy the first place, in spite of the presence of a good number of locomotives by the celebrated Stephenson, many of which had been constructed after the engine of Meyer and Co. Notwithstanding this formidable opposition, the Paris and Orleans Railway Company selected Meyer's engines, which have since so admirably worked, and the system has been found so superior to the others, that the said company have just given Messrs. Meyer and Co. an extensive order; but it is not only in France that these locomotives are appreciated to their fullest extent. We had occasion to speak of the orders successively obtained by the house of Meyer and Co. from the Governments of Bavaria and the Grand Duchy of Baden. We hear now that the Austrian Government has given its preference to this house, over the English builders, who offered even to supply their engines at lower prices. "These facts have more weight than mere words, and we name them here to the honour of the French builders, and especially to those of Mulhousen."

THE BOARD OF TRADE AND THE RAILWAY INTEREST.

Lord Howick called the attention of Parliament, on Wednesday last, in a speech of considerable ability, to the present constitution and working of the Railway Department of the Board of Trade. He objected to the decisions of that tribunal being considered final, and wholly disapproved of the formation of that board. Whilst the ordinary cases of a court of justice, involving sometimes but insignificant interests, were entrusted to the best talent of the land, schemes, in which property to the amount of millions was at stake, were committed to a body of officers utterly incompetent for such a trust. With the exception of its president, the gentlemen who composed the board ranked no higher than chief clerks of some departments, a circumstance which alone would render its decisions unsatisfactory, but more especially if they were to be considered final. The noble Lord witnessed the London and York line as a case in point, instancing the vast amount of property depending on the decisions of the board. In that scheme, there were 60,000 shares, and a 20*l.* premium on each share had been bargained for, in the event of a favourable report; thus, the officers of an inferior Government department would have the power of determining, or at all events influencing (even if their judgments were not regarded as conclusive), the transfer of 1,200,000*l.* from one part of the community to another. A body having a power so enormous should surely be based on the best principles, and composed of persons proportionate in rank and dignity. But, apart from this, there were other features in the constitution of the board highly objectionable; it was the practice at present to have recourse to secrecy, and pronounce judgment in the absence of the parties interested, who could neither answer the statements of their opponents, disprove false and conflicting assertions, or establish the superiority which they believed they unquestionably possessed. As a proof of the ill effects arising from this objectionable course, he instanced the report, which had obtained very general circulation, if not belief, that whispers of the result of certain schemes had found their way into the Stock Exchange long before the official promulgation of the report; this rumour, though he totally disbelieved it, would suffice to show that there were some grounds for complaint, and some working in the system highly objectionable. If it had been carried out on a higher and more worthy principle, such reports never could have arisen. The noble Lord concluded by suggesting that additional time should be allowed for presenting bills on this subject, above the limits generally allowed for introduction of private bills.

The great force of these remarks was frankly admitted by Sir Robert Peel, who promised to consider the subject fully on the next evening; at the same time he would state, without hesitation, that the decisions of the Board of Trade were not to be considered final, and no more importance was to be attached to them than their intrinsic value deserved. The Government would act perfectly neutral, unswayed by the official reports, or any other consideration, further than the interests of the community were concerned. The department in question was constituted for the purpose of affording information to the House on the multiplicity of schemes which would come under their discussion; the value of such information could not be over-rated, and its want had been severely felt in previous sessions. From his own personal experience, he could bear witness to the evils which had hitherto arisen from the difficulty of obtaining correct information on such matters. He had, some years since, when in opposition, sat on a committee for deciding the merits of two competing lines; the bill in question was the Rugby and Stafford. The committee sat sixty-five days; 75,000*l.* had been expended in attempting to pass the bill; and, notwithstanding his advice to the contrary, believing justice and principle to be on the side of its promoters, the bill was eventually thrown out. Such injury to the public, as well as to individuals, would, he confidently trusted, be obviated by the labours of the Board of Trade, whose members he successfully defended.

On Thursday evening the subject was renewed, by Lord G. Somerset moving for leave to bring in six bills for the consolidation of railway clauses, three for England and three for Scotland, which would have the effect of embodying in one uniform Act the various legislative enactments relating to these matters.—Mr. Wakley took occasion to revert to the rumour which prevailed in the City, that the decisions of the board were privately communicated before their publication in the *Gazette*. One gentleman, on Saturday se'nnight, was said to have made 40,000*l.* by the sale of shares in that single day, those shares having gone up from a small premium to 9*l.* or 10*l.* in the course of a few hours.—Mr. Gladstone repudiated the insinuations of unfair dealing on the part of the Board of Trade, and attributed any circumstance tending to favour that notion to the fact of the decisions being almost invariably in accordance with the merits of the case, which would enable parties of any sagacity who went before the committee to form a pretty correct idea of the probable result; and as to the publicity recommended to their deliberations, he believed that if that course were adopted, complaints would be endless of the vast expenditure of time and money lavished in conducting the business before the board, fully equal to that expended before committees of the House.

We fully subscribe to the opinions here elicited, both from Government and other Members. That a preliminary inquiry into the projects, before they go summarily before the House, is absolutely necessary no one will deny; but the greatest caution is requisite in the formation and conduct of that inquiry. Every member who conducts it should be thoroughly competent for the duties, and above all suspicion of partiality or collusion. Whilst deference should be paid to the decisions of such an unimpeachable tribunal, their judgments should have the effect more of calling particular attention to the objections which appeared to them *primâ facie* evidence of inferiority, than of guiding the ultimate committee of appeal to any specific judgment; its reports should be viewed in the light of *suggestions* for consideration, rather than *directions* for absolute control.

Such appear to us the chief features which should be conspicuous in the construction, the working, and the influence of the board; from the observations of the Premier, and the subsequent remarks of Mr. Gladstone, we believe that these considerations have not been lost upon the Government. We believe the Railway Department is duly constituted on the above important principles, and will be found to work effectually, amid the arduous and momentous difficulties which surround them. We fervently hope its labours will tend to the increased stability of our commercial and monetary relations—considering, with Mr. Gladstone, that this question is not to be looked at with regard to general or abstract principles, but with regard to practical results—believing that we are in a critical position in railway matters, in which a mass of proposals and of plans have been brought forward; that the whole speculative action of the country has concentrated itself upon railways; and that, although there may be faults found with particular decisions, although there may be with regard to certain lines feelings of objections against any inquiry not perfectly public, yet, what would have been the condition, the prospects, and the state of the railway share market, and of speculation in that market, if there had been no board of this kind, to simplify and reduce the business within practical limits, so as to enable the House of Commons to proceed?—and what the difficulties under which the House of Commons would have been placed at this moment if 240 railway bills had been placed upon the table with no guide or clue whatever to assist them, but subject only to the ordinary rules under which the private business of the House was conducted?

By Tuesday night's *Gazette*, we perceive, that out of five railway schemes submitted to their notice, the Board of Trade have reported in favour of two only, and rejected all the lines proposed by the Great Western Company. This appears to decide the question of the wide and narrow guage, the former being advocated by the Great Western, and disapproved by the Board of Trade. Whether this wealthy company will dispute this judgment, and appeal to Parliament, we cannot say; but one thing we venture to assert—that the decision of the Board is wise and commendable. It has been stated, that had the wide guage been countenanced, the greatest inconvenience would have arisen; it would have clashed with the narrow guage system, so general in the north, and caused great discomfort to the passengers, from the incessant shifting from one set of carriages to another, and the loss of time, thus necessarily occasioned. It will be seen also, that both the Wolverhampton lines have been rejected, thus leaving that town without accommodation at present; but we anticipate that this will be provided for by a report favourable to the Wolverhampton, Dudley, and Birmingham Company, or, perhaps, to the Grand Junction. Either alternative will afford that facility of transit to Wolverhampton which so important a town deserves.—The *Gazette* of last night contained a further list of lines reported on. The Board will recommend to Parliament the adoption of the South Wales Railway, the Monmouth and Hereford (Great Western), the Newport and Pontypool, and the Shrewsbury, Wolverhampton, Dudley, and Birmingham lines; and reject the Gloucester and Dean Forest, the Shrewsbury and Wolverhampton (Grand Junction), and the Shrewsbury and Stafford schemes.—The only *Irish* railway they report on is the Waterford and Kilkenny project, which they will *favourably* recommend to Parliament.

CONDITION AND VENTILATION OF THE COAL MINE GOAF.

None of our readers can have forgotten the terrible loss of human life at the Haswell Colliery, last September, when ninety-five persons perished in an explosion. Professors Lyell and Faraday were immediately sent by the Secretary of State to attend the judicial investigation which was held in consequence of the accident, and to inquire into its cause. These gentlemen have since made a Report to the proper authorities, which has been extensively circulated, and Prof. Faraday, with a view to illustrate by experiment what he had represented in that document, has since delivered a lecture at the Royal Institution. The arrangement adopted by the professor invited attention—1. To those parts of the mine in which the explosion occurred. 2. To the circumstances of the calamity. 3. To the means of preventing the recurrence of a similar accident.—1. With respect to the locality of the explosion. It appears to have occurred at a spot in the mine which Prof. Faraday described with great accuracy; this is called *the goaf*. In working a mine, low, narrow passages, at right angles with each other, are cut through the seams of coal. The square masses made by these passages are called pillars. These pillars are gradually cut away, and replaced for a while by systems of wooden props; and the place where these props replace a pillar is called a "jud." In time the jud is removed, and then the unsupported roof of the mine falls in. The heap of ruins thus occasioned by the successive drawing of contiguous juds is called by miners *a goaf*. When the mine is deep, and has been long worked, the size and height of the goaf are enormous; one of the goafs at Haswell extends over thirteen acres, and the height of it cannot be ascertained. Corresponding with this heap of rocky fragments, and produced by it, is a cavity in the mine like an inverted basin, including a thin belt of air which surrounds, and partly permeates, the goaf. It is this ærial space which Prof. Faraday regards as a magazine of danger. The air itself is, or may be, the fire damp (the light hydro-carbon gas) and common air, mixed in very various proportions. The lightness of this gas, and, therefore, of the mixture, causes it, if present, to ascend into the upper part of the goaf cavity, which is then converted into a reservoir of explosive matter. Prof. Faraday, secondly, described the probable circumstances of the accident as it happened. Some disturbance of the goaf cavity, occasioned by the drawing of a jud, and, possibly, a change of the pressure of the atmosphere, diffused the fire damp through the workings at that place. This, when lighted, would, by the explosion, raise, and then kindle the coal-dust, which is always abundantly pervading the passages; and these effects must, in a moment, have made the part of the mine, which was the scene of the calamity, to glow like a furnace. This conflagration was necessarily succeeded by vast volumes of the poisonous choke damp (carbonic acid gas), so that it was humanly impossible for any one within the range of the explosion to have escaped alive. Prof. Faraday then entered, thirdly, on the most important part of his subject —*the prevention of such calamities when occasioned by the goaf*. He proposes the ventilation of the goaf, and expressed his opinion that it would not be so well to attempt this by driving the contents of the goaf through any parts of the mine which are occupied by human beings; but he exhibited how the goaf cavity might be exhausted of noxious air by means of a pipe rising as high as possible—from four to eight or ten feet—into it, and communicating at its other extremity with the return way, or the upcast ventilation shaft, and illustrated the readiness with which this might be done, by most conclusive experiments. He filled a glass vessel (which represented the goaf cavity) with inflammable air, smoke, &c., and then exhausted it in a few seconds, by means of a pipe communicating with the flue of one of the small furnaces in the theatre. He used tubes of thin sheet-iron and of air-proof cloth for experiments on large and rapid currents, proposing (to avoid the effect of excess) to suspend them, or place them on props in the open space of any passage most convenient for the purpose; and said that such tube, or even others made by nailing four boards together, would be sufficient for the purpose. He showed that the terminal ends of these need not be reversed every time the upper end of the goaf changed its form, and concluded, by confuting objections that had arisen in his own mind, or might be urged against the details of the arrangement he recommended, and stated his belief, that it was, in reality, as practicable as it was theoretically unimpeachable.

We are requested to state, that the announcement in last week's *Merthyr Guardian*, that upwards of 200 men had been thrown out of employ from the suspension of operations at the Tondu Works, owing to a disputed claim to minerals between Sir Robert Price and the Cefn Cwsc Iron Company, "is wholly incorrect, as well as ridiculous." We regret our contemporary should have been so incautious, as to publish a statement of such a distressing nature, without first well satisfying himself of its correctness.

Metallurgy in England and France.—Although all the metals are skilfully worked by English artificers, yet it is most remarkable that those in which they excel are the most refractory; those which, when originally dug out of the earth, have the smallest importance, but to which thought and labour give the highest utility; those on which the hand of man, directed by his genius, accumulates the greatest factitious value—that is to say, a value which is nearly null in the savage state, but which goes on increasing in the exact ratio of intellectual civilisation. The French, on the contrary, have turned their attention to the metals which have the greatest value in themselves, and to which, when wrought, the workmanship adds the smallest merit. Thus, jewellery has long been a favourite manufacture with them, as well as the fabrication of the precious metals in all their shapes. These are the most luxurious and the least useful of the metallurgic arts; they are the least intellectual also, as gold and silver are more easily purified and melted than iron. Half civilised nations have, indeed, fabricated jewellery, but not until more urgent wants had been satisfied, and previous exertions had brought home the wealth, which, in some measure, entitles man to indulgence.

Copper Trade.—At the request of a correspondent we re-insert the following extract from the report of the Mining Company of Ireland, which was published entire in the *Mining Journal* of the 11th ult.:—"The returns from the copper mines of the United Kingdom have been most injuriously affected by the reduction of price, supposed to have been occasioned by enormous importations of foreign ores, chiefly from Cuba, and produced by slave labour, which, when smelted, is brought into competition with British produce for home consumption, under the provisions of the Tariff of 1842, by which means the market price of manufactured copper has been reduced from 98*l.* in 1840 and 1841, to 84*l.* per ton, the present rate; and the price of ore has been reduced from 102*l.* 5s. to 79*l.* per ton of copper therein—whilst there has been no amelioration by reduction of rents or rates, but, on the contrary, a large increase has been made in the duty on timber suitable for mining purposes, by withdrawal of the drawback of duty heretofore allowed therein."

Thermometers (*à déversement*) of M. Aime.—These two instruments point out, the first, all the variations as it increases—the second, all the variations of temperature as it diminishes: when they are reversed they show nothing. To make them serve for determining the temperature of the sea, they are placed in a copper cylinder firmly closed, and then they are let down to a depth that is determined; time is given till they get the temperature of the bed where they are placed, when they are returned, and brought up again. If the temperature increases from this bed up to the surface, it is only the maximum thermometer which suffers the mercury to escape; the other preserves the appearance it had before its immersion. If the temperature diminishes above the bed where the returning takes place, and afterwards increases to the surface, it is remarked, when the thermometer is withdrawn, that the *déversement* of the mercury has taken place in the two apparatus. The temperature of the inferior bed is equal to that of the surface of the sea, diminished by the number of degrees indicated by the maximum thermometer, and augmented by the number of degrees indicated by the minimum thermometer. The variation of either instrument is reckoned by the length of the column which the *déversé* mercury occupies in the tube of the thermometer. After one operation, the mercury is brought back into the *déversoir* from which it had escaped.—*Moniteur Industriel.*

Monster Bells.—The Messrs. Mears, the celebrated bell founders in Whitechapel, we understand, have for some time been engaged in casting a bell of enormous weight and dimensions for the cathedral at York. The weight of the famed great Tom of Lincoln is said to be eight tons and a half; but the one intended for York Cathedral, and now nearly perfected, in the foundry of the Messrs. Mears, exceeds that by two tons, being ten and a half tons.

Original Correspondence.

RAILWAY DEPARTMENT OF THE BOARD OF TRADE.

Sir,—The immense importance of the subject started by Viscount Howick, so soon after the meeting of Parliament, induces me to trouble you with a few observations for your next publication. Viscount Howick questions the wisdom and propriety of allowing the Board of Trade to exercise such large functions with relation to railway matters; but I will take the liberty of suggesting to his lordship, that he has not yet discovered the real source of error and perplexity, which is simply this, that the Board of Trade are not clothed with sufficient authority to constitute them efficient guardians of the national interests, as affected by the new system of railway communication. What policy and justice demand is, that the Board of Trade should have the power of investigating railway schemes *before* they are launched upon the credulity and cupidity of the public. Three-fourths of the railway projects in this country are adventurous plans, got up in the corners of solicitors' offices, without the remotest regard to public principle or national benefit; they are, then, ostensibly put forward by discreditably organised companies—shareholders are decoyed—the Stock Exchange brokers are supplied with the material of sham investment—enormous expenses are lavishly incurred—and, when this process is complete, the railway scheme is deemed to be ripe for the scrutiny of the Board of Trade! Thus the public are robbed and spoiled, and the wildest and most chimerical schemes are openly trafficked in, and *now* under the sanction of the Joint-Stock Companies' Act, which in many cases will only operate to legalise fraud by the registration of counterfeit companies—that is, of committees binding themselves by private arrangements, as I pointed out in the case of the London, Manchester, and York Railway Company, referred to in your Journal of November 23, 1844. In your next publication, I will endeavour to indicate the signal benefits which might be anticipated from conferring upon the Board of Trade a higher and more effective power of inquiring into the *principle* of railway schemes *before* a single advertisement should be suffered to attract the attention of a public too prone to reckless speculation. In this way, the interests of many deceived parties would be in future protected—and, moreover, the projected highways of this great country would be under the entire *surveillance* of the Crown, instead of being, as at present, a commodity to be traded in by covetous capitalists, who care not a jot whether railway schemes be good or bad, provided they can turn a penny on the Stock Exchange.

Parliamentary Agency Offices, Cannon-row, Westminster, Feb. 7. ——— Thomas Mulock.

THE IRON TRADE OF SCOTLAND.

Sir,—Your correspondent, "Northumbria," has shot rather beyond his mark. As the writer of the article under the above title, I am not altogether ignorant of the *present* condition of iron-making in the counties of Northumberland and Durham, although what it bids fair to become *in future times* I shall cheerfully leave to the foresight of your correspondent. It is not long since I met with one of the most respectable and extensive iron manufacturers in that district, who was making eager inquiry whether a convenient mineral locality towards the east coast of Scotland could be found for the erection of furnaces for the production of pig-iron for his own establishment, and prevent his being dependent on the Scotch market for his regular supply. So much for *his* "overlooking the great capabilities of the iron-fields" in his own neighbourhood. It is an indisputable fact, that the quantity of Scotch pig-iron required in the above counties for castings and malleable iron is not only great, but increasing every year—and this notwithstanding the superior quality of the iron made within the district. The question arises, how is this accounted for?—I answer, as in my former statement, that the peculiar character and the richness of the minerals in Scotland, admit of iron being produced at a cheaper cost, and equally well adapted for all manufacturing purposes. There is one feature in my former statement which might have been more forcibly brought out, as marking the great benefit which the country in general has derived from the application of heated air in the smelting of iron. It would be observed, that I gave the January prices (as being usually the lowest) for the last twenty-five years. The average rate for the first ten years, 1821 to 1830 inclusive, when *cold-blast* was in operation, is 7*l.* 2s. 6d. per ton, while the average of the last ten years, 1835 to 1844 inclusive, under *hot-blast*, is 3*l.* 17s. 6d.—giving a benefit to the consumers of Scotch pig-iron of no less than 3*l.* 5s. per ton. Supposing the make to have been equal to 100,000 tons per annum, for the last ten years—and I am persuaded this is not far from the mark—the saving of cost to the country amounts to 3,250,000*l.*, on the article of iron made in this quarter, besides the impetus which it has given to every branch of trade where iron is consumed. Such considerations, certainly, were well entitled to call forth the public testimonial given in this city on the 1st inst. to James Beaumont Neilson, Esq., as the meritorious inventor of this system of iron-making.

Glasgow, Feb. 4. ——— Caledonia.

MALLEABLE AND CAST-IRON RAILS.

Sir,—In your account last week of the proceedings of the committee of the Duffryn Llynvi and Porth Cawl Railway Company, in regard to their choice of cast-iron rails, and of their superiority over those of malleable iron, and also the facility with which rails of the very complicate description alluded to, can be manufactured, you very properly express your doubts upon these points; I should have been greatly surprised had it been otherwise, for I certainly thought the important question as to which description of rail was superior, had been set at rest long ago by Mr. George Stephenson—to wit, ever since he constructed the Darlington and Stockton and the Manchester and Liverpool lines of railway. Perhaps, the antiquity of the thing had charms for this sage committee, headed by the experience of Mr. Buckland—what else could have deluded them? Of the successful introduction of the description of rail in question at Butterley, I have but little knowledge; but of that at Cwm Avon, on the road communicating with Port Talbot, I do happen to know that the proprietors of that line of road have condemned it as unworthy, and are about to discard these bepraised rails, which have been proved in practice to be anything but satisfactory; indeed, at this moment, they are only waiting to dispatch some other work they have in hand, before they proceed to take them all up, and re-lay the road with malleable iron, which it is their fixed determination of doing the first favourable opportunity. And as to the facility and cheapness so highly spoken of, with which these fanciful rails can be turned out of hand, I know something of *that* too; and if your informant had said *five times* the cost of tram plates in moulding, &c., he would have been nearer the mark, than to say they could be manufactured at the same rate.

London, Jan. 30. ——— An Ironfounder.

THE DISCOVERY OF GOLD ORES IN NORTH WALES.

Sir,—I very readily respond to your wish "to set the matter right," with Mr. Roberts, but not "by acknowledging the correctness of his representations." With regard to his discoveries in 1836 I know nothing, and no one would more cheerfully acknowledge his claims than myself, were I convinced of the truth of his statements, but he has used so much subterfuge in his attacks on me, that I must decline accepting any of his "facts."

In my last I stated Mr. Roberts had acted during several months under my orders, which he has not dared to deny directly, but says, "I most distinctly deny being in either his or his employer's service one hour, or that I ever received any remuneration"—this is a mere quibble. After the sale of the mines he continued to act as agent, under me, by permission of Mr. Harvey, the former owner, there being matters of account connected with the mines remaining unsettled, and I found great difficulty in selecting a good and experienced Welsh captain to take his place; as he acted for Mr. Harvey also in some other business, the latter received 8*l.* per month from the mines for Mr. Roberts, and made up the balance of his pay himself. To show that he acted under my directions, I select the following specimens from among the official correspondence which passed between us (the originals of which I submit for your inspection). On 30th December, 1843, I wrote—"Mr. H. will instruct you to follow my directions after the 1st January 1844, I am, therefore, desirous of pointing out," &c.; to which he replied, 1st January—"I have received your letter of *instructions*, and will comply with them." Again, 13th February, I wrote in reply to his of 11th—"The mines are entirely out of Mr. H.'s control, therefore, in future, I shall be obliged by your addressing all communications relative to these mines *to me*," &c.—sufficient proofs, I think, of his having acted under my orders, and that I am entitled to draw the inferences stated in my former letter. Mr. Roberts refers to samples of gold ores he sent me, and to a letter of mine requesting him "not to give information to any one but Mr. Harvey where he got the gossan ore from"—this is easily explained. In November, 1843, on my second visit to Dolgelley, I perceived

in two of the workings at East Cwmheisam Mine what I considered to be gold and silver ores, broke samples, and brought them to London to be assayed; some time after, the assayer wishing for more ore to experiment upon, I wrote Mr. Roberts, giving him minute instructions where to find the ore (but merely stating it contained silver, as I wished to keep the knowledge of the discovery I had made to myself), and he accordingly forwarded a box of ore to my office, which being opened during my absence from London, Mr. Harvey obtained some of this ore, as also of the first sample, had it assayed, and being at Dolgelley shortly after, told Mr. Roberts that it contained gold; on learning this, I immediately wrote, cautioning him as before stated, as I did not wish the secret divulged—thus you will perceive how a simple fact has been distorted, to bolster up a bad case. Who the correspondent is who has supported Mr. Roberts's statements of course I know not, but I am willing to believe that, like yourself, he has been deceived. For my own part I have been drawn into this controversy much against my will, and shall not proceed with it further, as I defy any man to disprove one iota of what I have stated. The discovery of gold veins in North Wales is not uninteresting to the public, as I believe Merionethshire contains as fine gold mines as any part of the world; the structure of the country is identical with that of the great auriferous region of the Ural, and the veins exhibit all the characteristics of those found in the South American mines.—*London, Feb.* 3. ARTHUR DEAN.

SMART'S PATENT CONVEX PROPELLERS.

SIR,—Your valuable Journal being the most proper, not only for the promulgation of inventions, but the effects and results produced by the same, I should be much wanting in duty to withhold anything in my power which may contribute to its interesting nature. My ship, the *Osprey* steamer, of 180-horse power, has this voyage been fitted with Smart's patent convex propellers, and the result has proved so highly satisfactory to all concerned, that on this, my return from Waterford, I was determined to report the same through your Journal. Without exaggeration, the *Osprey's* speed has been increased, when under the most unfavourable circumstances, nearly three-quarters of a knot per hour, and vibration, that worst of attendants on steamers, is done away with, and many other good qualities attend the adoption—smoothness imparted to the working of the engines, &c.; but I would particularly name, for the profit of the owners of steamers, that the convex float, as invented by Mr. Smart, is not at all subject to get out of repair, and will last as many years as the common float will months.

Osprey Steam-Ship, Bristol, Feb. 6. GEO. BURGESS, Commander.

PILBROW'S ATMOSPHERIC RAILWAY.

SIR,—Allow me to express the pleasure I felt in perusing a notice in your paper of Saturday last on the *conversazione* given by the vice-presidents of the Society of Arts, and the honourable manner in which their able secretary, Mr. Wishaw, was mentioned. Having been present, you will permit me to make a few remarks on an invention that was introduced that evening. I allude to Mr. Pilbrow's plan of "atmospheric propulsion;" and, as was most justly remarked, a "beautiful model" was submitted for inspection. I was, indeed, gratified—and the more so, being, as I thought, prepared with insurmountable objections to the plan; but I must, in justice to Mr. Pilbrow, say, that they vanished the moment I saw the excellent working of his model, and heard him answer to some most scrutinising questions, which he did in a manner highly creditable to him. I was particularly pleased with his plan, having been led to expect great "complexity of parts," so that it struck me, when viewing it, that whoever employed that term must surely have *meant simplicity of parts*, for it certainly promises to obviate all the existing difficulties that at present environ the atmospheric system by the most simple and efficient means; and I can only say, that if it performs as well on a large scale as it did on Tuesday evening, it will, indeed, be a great step in railway progress. I wish it, as I now think it deserves, entire success. A LOVER OF SCIENCE.

Bishopsgate, Feb. 3.

IMPROVED BED FOR INVALIDS.

SIR,—In your paper of the 18th inst., under the head of "Improved Bed for Invalids," you express yourself pleased with the model of one recently exhibited at the Royal Polytechnic Institution, for which the manufacturer had obtained a patent; and, after describing the principle of the bed, you say—"an invention of this sort has long been a desideratum for invalids, whether from disease or broken limbs, and we have often regretted that the attention of some ingenious mechanic has not been turned to this subject." Now, Sir, I have never heard of the bed you allude to, until I saw it in your paper this week; and I also beg to inform you, although not a mechanic, but a retired British naval seaman and officer, who has fought and bled for his country in the late wars, that I many years since invented a bed for invalids, and for which I was awarded the silver Vulcan medal from the Society of Arts, at the hands of his late Royal Highness the Duke of Sussex, in May, 1826; since that I have effected certain improvements, which I believe make it the most perfect thing ever seen, or could be desired; I have recently exhibited it before a number of medical gentlemen at the University Hospital, in London, at Exeter, and other places, and it has obtained the most unqualified approbation from them, and I shall have much pleasure in showing my bed to you, or any gentleman connected with your Journal, the first opportunity that offers. Besides the advantages already enumerated, my bed will place the patient in a sitting position, or on an inclined plane, either longitudinally or latitudinally, either to the right hand or to the left, for the purpose of facilitating surgical operations—in fact, there is no position in which you may require to place a patient for which it does not furnish the means. I further beg to add, that my bed is so simple in its construction that *one nurse* alone is required to attend, though the heaviest man in England may occupy it; and all its movements are so easy as not to disturb the patient's slumbers.—I have taken the liberty of enclosing a small pamphlet for your perusal, from which you will learn the history of my bed; and you will also see the success that has attended my endeavours to alleviate the sufferings of my fellow-creatures, from the many testimonials received from public institutions and private families.

In conclusion, Sir, I beg to add, I should not have troubled you with this, if the remarks which I have before quoted did not leave the public to suppose, that the bed you allude to was quite a *new invention*, and that hitherto we have been without the means of affording so much comfort to our suffering friends. I am not aware on what principle the patentee has constructed his bed, to effect those very desirable objects, or to entitle him to obtain a patent; it may possibly be very novel in its construction, but *certainly not* in its *applications*, since my bed has long been found most efficient for all the purposes which an invalid bed could possibly be required, and possesses all the advantages which you describe, with many additions. I will merely add, that my bed possesses the following essentials—viz., economy of price, durability and strength in construction, easy movements, variety of position, capability of fixing in any room, and, when not required for an invalid, it may be used as a common bed.

Your inserting this in your next, will be doing but a piece of justice to

Plymouth, Jan. 28. J. BOTHWAY, R.N.

CURSORY REMARKS ON THE BATH WATERS.

SIR,—I ought really to apologise for writing on the subject propounded to me by "An Invalid," in the absence of all my references and memoranda. I must entirely trust to the memorials of recollection, and would not have made the adventure, but from a sincere wish to comply with the suggestion of your correspondent. Specific details I must, therefore, entirely avoid, nor is it necessary, on the present occasion, I should discuss any other than mere generalities. The source of the heat of thermal waters, or the depth from which they arise, can be, at best, only conjecture. They have generally been attributed to a volcanic origin; others, however, consider the phenomena to be connected with a central fire!—an hypothesis assumed by modern geologists generally, but an opinion from which I entirely dissent, as being altogether gratuitous and unsupported. I can readily account for a common origin as to the seat of volcanic fires, and I can also admit that this source may be deeply based in the earth, without plunging to a depth of 4000 miles! The centre of the earth might be a nucleus of ice, and an ocean of flame float far above; the interposition of a non-conducting material would be sufficient separation, even were it of very limited thickness. The cause of *thermal waters*, as to temperature, appears to me more likely to arise from the voltaic electricity of the earth, and hence its uniformity for ages. The temperature of thermal waters will range from 84 deg. to 167 deg. Fah., and that of the geysers of Iceland, according to Sir George Mackenzie, is 210 deg. Fah. The temperature of the spring at Bath, called "King's Bath" is, I believe, about 115 deg. Fah. There is a peculiarity which deserves notice in reference to hot springs, and that is, their containing *silica*. This is the case with the thermal waters of Lucca, and I can attest the same of those of Pisa, from the analysis I made of them when there in 1818. This is the case also with those of Bath, which contain silica, probably combined with *soda*, under the form of silicate of soda, and soda obtains in the waters of Lucca, as it does in the boiling springs of Iceland. The basin into which the geysers are precipitated is composed of chalcedony and agate. Dr. Joseph Black had the prior merit of discovering in these hot springs the silica and soda. The prevalence of silicious nodules in chalk has long puzzled and perplexed the geologist. I see no difficulty in the matter; if the chalk originally was a silicate of lime, then the transfusion of carbonic acid would form chalk, and precipitate the nodules of flint. The chief mineral ingredients of the "King's Bath" have been found to be, sulphate of lime, sulphate of soda, and muriate of soda; other ingredients are in minute fractional proportionals, and in the very process of analysis, as shown by the late Dr. John Murray, of Edinburgh, the saline contents of waters may change their ~~affinities—if I mistake not, Nous~~ says there is *no iodine*. He is wrong. In consequence of my discovery of iodine in the "Spa" of Gloucester, and which was the *first* discovery made of the existence of iodine in the mineral waters of England, the late Mr. Chas. Cuff, of Bath, was induced to search for it in the mineral waters of that city. He had no less than a hogshead of the water evaporated for the purpose; he *did* discover iodine, *for I saw it*, and I searched for it afterwards in the residual saline matter, but found none. I also discovered iodine in the Cheltenham Spa, and found both iodine and bromine in the brine springs of Ingestrie, which I analysed for Earl Talbot, and likewise in Sutton Spa; but the most remarkable proportionals I ever met with, both of iodine and bromine, were in the Caldas da Reyna of Portugal, for which specimen I was indebted to the Chevalier Mascarenhas.

Carbonic acid gas affects the brain, and acts as a narcotic poison. When water is charged with it (above all, at an elevated temperature) it produces when taken, sometimes a transient giddiness, especially if several tumblers-full are quaffed, and this effect may be occasionally witnessed in the Pump-room at Bath. The loss of transparency is very easily accounted for: the lime is held suspended by an excess of carbonic acid gas; on emerging into the air the free gas escapes, and the water being reduced in temperature, the sub-carbonate of lime, which is now formed, being precipitated, renders the water opaque, as when we blow through lime-water. It is beautifully illustrated in the case of the "petrifying well" at Matlock; here the water is a hot spring, and contains super-carbonate of lime; as it rises into day, being cooled, while the excess of gas escapes, the water is incapable at the lower temperature, of holding in chemical solution the carbonate of lime; it is, therefore, precipitated on various objects, as moss, birds' nests, branches and cones of fir, &c., forming what are called "petrifactions," being incrustations of carbonate of lime.—I may again resume the subject.

Hull, Jan. 28. J. MURRAY.

THERMAL WATERS.

SIR,—You are aware that the estimate in reference to terrestrial heat is 1 deg. Fah. for every fifty feet of descent, and this may, to a certain depth, prove a tolerably correct calculation. At this rate, at the depth of 100 miles, it would be sufficient to fuse the most refractory metals—but all this is the language of hypothesis. The coal-pit at Namur, in France, and that worked below the magnesian limestone, in the north of England, are the greatest depths ever attained—and what are these compared with the radius of the earth?—"dust in the balance." The *comparatively* limited range of earthquakes, though sometimes very extensive, show clearly that they cannot be founded in a central fire. We might, on such an assumption, expect our globe to be shattered to pieces. The results obtained from the temperature of the Artesian well of Grenelle were tolerably uniform, but its depth is far inferior to that of the Consolidated Copper Mine, in Cornwall. I do not remember now the temperature of the baths of Pisa; I only recollect I had accidentally broken my thermometer, and was under the necessity of borrowing one from the University Professors, and a *rude* one it certainly was, the scale being of *slate*, but it ranged about 120 deg. Fah., that of the water. The temperature of the *Bagni di Nerone*, in the Bay of Bäiœ, near Naples, which is *saline*, exceeded 176 deg.; for Chevalier Carlo di Gimbernat, then *Charge d'affaires* for the King of Bavaria, at the Court of Naples, and myself, on our geological excursions, cooked *eggs* in it one morning for breakfast. I have mentioned the incrustations deposited at Matlock, and it is thus easy to understand how the beautiful casts of medals and medalions are manufactured in this way at Aquapendente, in Italy—they are worthy of admiration. Thus, too, *moss agates* are naturally formed. In some cases, no doubt, the dendritic appearances we meet with in the mineral kingdom are those of oxide of manganese (I do not now advert to capillary silver, and moss and dendritic copper); but Dr. M'Culloch proved incontestibly that many were *real vegetable productions*. Some time ago, a *chara* in flower, and maturing its seeds, was found in the boiling springs of Iceland, and their deposits are, as has been already stated, agate and chalcedony. There are very interesting hot springs called the "Baths of Trajan," a few miles from Civita Vecchia. Their temperature is very high, and columns of hot vapours may be seen arising from them, at some miles distance. I analysed these springs for the Roman Government, transmitted through the Governor of La Tolfa, with whom I spent several pleasant days. There are only *ruins* now, but such as emphatically attest that they were once held in no mean repute. It was at the period to which I now refer, proposed to construct buildings there, and thus make it the resort of the *noblesse* of Rome. In contemplating the *uniformity* of these and similar phenomena—invariable from immemorial ages—I confess I have been often inclined to soliloquize and embody my thoughts almost in the very language of the noble author of *Armata*. Take, for instance, the case of the celebrated intermitting spring at the *Villa Pliniana*, on the beautiful Lake of Como. It has continued to intermit uniformly ever since the days of the Roman naturalist, Pliny, whose description and attempted solution of its reciprocation is chiselled in a mural tablet on the spot. The Chevalier di Gimbernat told me he attentively watched its flow and intermission for *forty days*, during the period of the equinoxes, and could not discover the very slightest variation.

There is a very remarkable substance connected with some hot springs, which I may now notice; Adanson, if I mistake not, first observed it, in connection with thermal waters in the south of France. It was called *Oscillatoria thermale*—the specific name being applied to it from its connection with hot springs, and the generic title from the constant vibratory movements observable in its fibres. When cut from the live rock, Epomeo, in the Island of Ischia, in the Gulf of Naples; the Italians employed on that occasion by the Chevalier di Gimbernat, exclaimed, "carne, carne" (*flesh, flesh*); and in truth it more resembled raw muscle in the butcher's shambles than anything else. The façade of the mountain where it was found was constantly humid from the ascending vapours of the hot springs at the base of the rock. Though hitherto considered a denizen of vegetation, I am inclined to view it as a member of zoology. In 1818 I made several experiments with it at Naples; among others, I found that it was converted into a substance analogous to *adipocire* by the action of nitric acid—a result which strongly pleads for its animal nature; and when I showed a portion of it (in my possession) to Dr. Roget, he unhesitatingly pronounced it to be *animal muscle*. Chevalier di Gimbernat obtained many analogous substances, but of a *gelatinous* nature, from hot springs, which he called *zoogene*, but those he afterwards transmitted to me, I believe, to have arisen from *polygastric infusoriæ*. J. MURRAY.

Hull, Jan. 29.

ON LOCOMOTIVE EXPLOSIONS.

TO RAILWAY DIRECTORS AND ENGINEERS.

GENTLEMEN,—The now frequent occurrence of locomotive explosions calls loudly for some change that will render those boilers safe, and worthy of that confidence which the public have hitherto placed in them. All the serious and violent explosions that have as yet taken place have been caused by the failure, or giving way, of the internal fire-boxes. Why are the fire-boxes of locomotives not constructed so that only a small portion of them can give way when overpressed, and act as a safety-valve, instead of their construction being such that when a rent takes place, it extends to the destruction of the whole roof of the furnace, and a terrific explosion is the result. On a late occasion, in the bursting of the *Forester* locomotive on the South-Eastern line, much stress was laid on the furnace being a round one. The advocates of the square furnaces assert that round furnaces are defective, because the internal and external fire-boxes are not bolted to each other, and so far their reasoning is good; but we have also instances of the bursting of square furnaced locomotives. That of the *Adelaide* on the Newcastle and Carlisle line, and recently the *Ark* on the Manchester and Leeds line, are sufficient evidence of the defects of the square furnaced plan. In each of these explosions, the whole internal roof of the furnace gave way. It is impossible for the whole of one side of the furnace of a square furnaced locomotive to give way at one time, because at this part of it the external and internal fire-boxes are bolted to each other at short intervals. Now, why is this safe and self-preserving arrangement of parts not applied to prevent the whole of the roof giving way at once? Engineers have hitherto replied to this question, that there are mechanical difficulties in the way. But they are now without this excuse. The furnace which I invented last year, and one of which I have now working in my premises, has the internal and external fire-boxes bolted to each other, at short intervals, all over the roof as well as at the sides. No violent explosion can ever occur with this furnace; for such is its construction that the greatest extent of fracture that could take place at one time, would be only four square inches of the internal fire-box, and such an opening would act as a safety-valve without doing any injury. Again, your laudable endeavours to diminish the consumption of fuel in locomotives has already reached its full extent, as far as the present plan of locomotives will permit. The only alteration that would to a certainty diminish the consumption of fuel would be the increasing the area of the fire-grate, and the area of the heating surface within the furnace of your locomotives; but these improvements you are debarred from making, owing to the enormous increase in the risk of explosion consequent upon your increasing at the same time the area of the roof of the furnace, which is the defective part of the boiler. The plan of furnace to which I now draw your attention affords you the opportunity of extending the area of the fire-grate and the area of heating surface within the furnace to an unlimited extent, without, in the slightest degree, increasing the danger of explosion. Lastly, from the experience I have had in working my patent boiler and furnace, I am now prepared to guarantee that they keep themselves free from any of the deposit from sediments that are usually found in boilers. The boiler and furnace that are daily working on my premises may be seen by all who take an interest in these matters. J. JOHNSTON.

Willow-park, Greenock, Feb. 4.

P.S.—I shall be happy to forward railway directors and engineers plans and explanations, on receiving applications for them.

MINING IN CORNWALL—ALVIGGAN MINE.

SIR,—I have just now had my attention directed to a paragraph which appeared in your Journal a few weeks since (From a Correspondent), relative to a little mine which I have the honour of superintending for a few London gentlemen. As it is, strictly speaking, but a private speculation, I was surprised to find that the success which has attended our operations had obtained any publicity, or was likely to attract much attention, and I could have wished that your correspondent had advised me of his intention before communicating with you, as I might have put him in possession of information that would have made his communication more interesting, because more correct. The Alviggan Mine (not Halbiggan) is situated about two and a half miles north-west of St. Austell, upon the Alviggan Moor, from which it takes its name. Our operations were commenced about thirteen months since, in some very ancient workings, where, finding some good stones of tin, a small steam stamping-engine was bought, erected, and put to work by the end of February last year. In the month of March, a small parcel of tin was sent to market, and sold at 45*l.* 10s. per ton; we sold again in April, at 46*l.* 5s. per ton; in June, at 46*l.* 10s.; in August, 45*l.* 10s.; October, 45*l.*; November, 47*l.* 10s.; and December, 47*l.* 10s. per ton. From the day upon which we commenced operations, we have been raising some good tin stuff from a lode known here as Remfry's lode. On the 29th October, we cut at the adit level upon this lode as fine a course of tin as I ever saw in the county during twenty years' experience. We have from this bunch taken out several tons of tinstone, nearly solid metal, many of them very large; we have one weighing 180 lbs., worth 12 for 20, as it came from the lode. We have sunk a shaft, from which to drive a cross-cut to get under this bunch, and if it should hold down as it now is, the lode being large and speedy, there must be thousands of pounds' worth of tin raised from it in a very short time, and at little expense. We have several other lodes in the sett, four of which are so central that they will be commanded by one engine, the shaft for which is now down about twenty fathoms. J. REMFRY,

St. Mewan, Cornwall, Feb. 3. ——— Captain of the Mine.

WHEAL MARY MINING COMPANY.

SIR,—I was not only sorry, but surprised, to see my name to Wheal Mary report, inserted in your Journal of last week. Not having made any charge, or received the least remuneration, for assaying the ores—which were, indeed, examined more especially for my own guidance relative to other mineral veins in the neighbourhood, in which I am more particularly interested—the parties had no right whatever to make use of my name without my consent, but should have been satisfied with the information that the ores contained silver, which was not previously known. I feel it my duty to state, that the minerals examined were select minute hand specimens, and not an average produce of the orey part of the lode, a fair sample of which would show a very different figure —*Tempus omnia revelat.—Callington, Feb.* 5. JOHN PRINCE.

MINING IN CORNWALL.

SIR,—I always peruse with great interest whatever relates to my "native county," Cornwall, more especially the "Eastern District," the "site of my home," and right glad I was to read your favourable report; it brings to mind such mines as Wheal Marquis, Ding Dong, Gunnis Lake, Harrowbarrow, Drake Walls, Hawkmoor, Wheal Friendship, Wheal Betsy, Wheal Creber, Wheal Morshead, and many other old mines with new names; and associated with the names of Captains Hitchen, Brenton, Malachy, Dyer, Remfry, R. Williams, and A. Williams—worthies now no more. I am no Silver Valley miner, let me see the yellow copper ore of Ding Dong, where I have no doubt the present spirited company will have a profitable concern. Alas! how is it that poor old Drake Walls, one of the best specs in the neighbourhood, should be so neglected? I hope to hear of many a vein, beside that of Wheal Maria, being cut rich. The Botallack Mining Company's statement of accounts "for Sept. and Oct., showing a profit of 1776*l.* 5s. 5d.," is, I believe, an error; the balance in hand of 930*l.* 11s. 9d. ought not to have been added to the sales, but the balance struck between "cost and sales," which would only have showed a profit of 845*l.* 13s. 8d.

Flintshire, Feb. 6. A MINE ADVENTURER.

"GREAT BRITAIN" STEAM-VESSEL.

The intense interest excited by this stupendous specimen of naval and engineering skill has induced us to lay before our readers the annexed account of her dimensions, as well as a minute description of her machinery, works, &c. As we have already observed, she certainly is a beautifully compact fabric—perfect in every particular, and will well repay a visit to her engine-room and other departments:—

The length of the keel is 289 feet—total length, 322 feet.

Beam, 51 feet—depth 32 ft. 6 in.—feet of water when loaded, 16 feet.

Displacement, 2984 tons—tonnage by old measurement, 3443 tons.

Plates of keel nearly 1-inch thick—plates of bottom varying to three-quarters of an inch at extremes, and to five-eighths generally.

Topsides half an inch, and at the extreme aft 7-16ths.

The ribs are framed of angle iron, 6 inches by 3½ inches, half-inch thick, and 7-16ths—distance of ribs from centre to centre, amidships, 14 inches, increasing to 21 inches at the ends.

Ten iron sleepers run from the engine-room, gradually diminishing in number to the fore-end of ship and under the boilers, the platform of which they support—in midships they are 3 feet 3 inches in depth, supported by angle irons in the form of inverted arches, and at a short distance from each other.

She has five water-tight partitions—stows 1200 tons of coal—1000 tons of measurement—the engines weigh 340 tons—the boilers 200 ditto, and hold 200 tons of water.

The main shaft is 28 inches in diameter in the centre, and 24 inches in the bearings; in the rough, before turned, it weighed 16 tons. It has been lightened by a hole of 10 inches diameter, bored through. A stream of cold water passes through the cranks and this hole when the engines are at work.

The screw shaft is in one long and two short or coupling parts. The part next the engine, solid, 28 feet by 16 inches diamer. The hollow intermediate shaft 65 feet, by 2 feet 8 inches diameter. The screw part is 25 feet 6 inches, and also 16 inches diameter. The total length is 130 feet, and it weighs altogether 38 tons.

The screw is of six arms, 15 feet 6 inches diameter, 25 feet pitch, and weighs 4 tons—the main drum is eighteen feet diameter, and drives four chains, weighing 7 tons—the screw shaft drum is six feet diameter, and the weight with the pull when working is equal to 85 tons on the bearings of the main shaft.

The cylinders are four in number, 88 inches each—stroke, 6 feet—power, 1000 horses—the condensers are of wrought-iron, 12 ft. by 8, and 5 deep.

Under the whole space of the engines, up to the top, the angle irons are doubled—the upper main and saloon decks are of wood, two cargo decks are of iron. The officers and seamen are all accommodated on two decks under the forecastle.

From the ship's bottom to the upper deck runs, on either side, for the whole length of the engines and boiler space, a strong iron partition, forming below the coal bunkers; and above, the servants' accommodations on one side, engineers' cabins and stokers' accommodations on the other, besides twenty-six water-closets.

She has six masts, fitted with iron rigging, adopted in consequence of its offering two-third less resistance than hemp—a great point going head to wind. The plain sails of a 52-gun frigate, *i. e.*, without counting royals, stays'ails, and steering sails, number something short of 5000 yards of canvass, and the plain sails of the *Great Britain* amount to 4943 yards. She carries four large lifeboats of iron, and two boats of wood in the davits, and one large life-boat on deck; they are built according to a patent taken out by Mr. Guppy, and are capable of carrying 400 people.

NEW APPLICATION OF IRON.—Experiments have for some years been in progress, chiefly under the superintendence of Herr Dase, inspector of mines in Richmond, in the Duchy of Brunswick, with a view to make cast-iron, as the cheaper and more durable material, applicable to the preparation of stereotype plates. The success of these experiments is attested by the publication of a cast-iron stereotype edition of the Bible, published at Nordhausen, the price of which, with marginal readings, is 9 ggr. (13d.)

Mining Correspondence.

ENGLISH MINES.

HOLMBUSH MINING COMPANY.

Feb. 3.—The cross-cut at the 120 fathom level is driven south three feet, and the ground is favourable. In the 110 fathom level, west of Hitchins's shaft, the lode is ten inches wide, producing stones of ore; in the stopes in the back of this level, east and west of Michell's winze, the lode is fourteen inches wide, and worth 18*l.* per fathom; in the stopes west of Lobb's winze the lode is fifteen inches wide, and worth 25*l.* per fathom; in the stopes west of the sump winze the lode is fourteen inches wide, and worth 11*l.* per fathom. In the 100 fathom level, west of Hitchins's shaft, the lode is one foot wide, and worth 15*l.* per fathom; in the stopes in the back of this level, east of Forest's winze, the lode is fifteen inches wide, and worth 16*l.* per fathom; in the stopes west of Hitchins's shaft the lode is sixteen inches wide, and worth 24*l.* per fathom; in the stopes west of the south cross-cut the lode is fourteen inches wide, and worth 20*l.* per fathom. In the ninety fathom level, west of Hitchins's shaft, the ground is not so favourable for driving; in the winze sinking below this level the lode is small and poor; in the stopes east of Pearce's winze the lode is twenty inches wide, and worth 25*l.* per fathom; the stope at Hitchins's shaft is at present suspended. In the winze sinking below the eighty fathom level the lode is six inches wide, producing stones of ore; in the rise in the back of this level the lode continues small and poor. We weighed at quay on Friday last December ores, 191 tons 12 cwt., and sampled January ores, computed 192 tons.

T. Richards.

BEDFORD UNITED MINING COMPANY.

Feb. 3.—At Wheal Marquis the new engine-shaft is now completed to the seventy fathom level, and the cross-cut south was set to drive on Saturday last—there is about five fathoms to drive to intersect the lode. The lode in the fifty-eight fathom level east is two and a half feet wide, composed of gossan, spar, and ore; and in the rise in the back the lode is two and a half feet wide, and worth 15*l.* per fm.; there has been no lode taken down in this level west since last report. In the forty-seven fm. level west the lode is two feet wide, and worth 8*l.* per fathom; and in Clemen's winze, sinking in the bottom, the lode is two feet wide, and worth 10*l.* per fathom; the stopes in the back of this level were set on Saturday last, at a tribute of 3*s.* in the 1*l.* New tribute ground, east and west of Warne's winze, in the back of the fifty-eight fathom level west, working at a tribute of 4*s.* in the 1*l.* The lode in the deep adit level east is one and a half feet wide, composed of spar and mundic, with spots of ore in places. At Ding-Dong the lode in Thomas's engine-shaft is two and a half feet wide, composed of spar, mundic, and ore; and in the twelve fathom level east two feet wide, composed of spar, mundic, and ore. At Wheal Tavistock the lode in Phillips's engine-shaft is twenty inches wide, composed of gossan and spar, intermixed with ore. We sampled on Friday last a parcel of ore, of good quality, computed 111 21-cwts., and weighed parcel last sold, 109 21-cwts. 3 qrs. The prospects of these concerns generally are encouraging; there is strong ground for expecting improvements shortly.

J. Phillips.

COOK'S KITCHEN MINE.

Feb. 1.—In the cross-cut south from flat-red shaft we have about seven fathoms more to drive to cut the lode—ground 6*l.* 10*s.* per fathom; our pitches, on the whole, on North Tincroft lode, are improved since our last. Eudey's lode, in the 121 fathom level, is three feet wide, but still unproductive. In the two pitches in the back of the eighty-two fathom level, east of the eastern shaft, on this lode, the men are getting fair wages, at 8*s.* and 9*s.* in 20*s.* Chapple's lode, in the 170 east, we are carrying the south part three feet wide, and worth 7*l.* per fathom for tin. In the cross-cut driving north, at the ninety-two fathom level, we have about five fathoms more to cut Eudey's lode. Dunkin's lode, in the 170 west, is two feet wide, producing stones of tin. We have commenced driving a cross-cut north, at the 140 fathom level, to cut Dunkin's lode, which is hove about twelve fathoms north by the little cross-course; this lode has been a very productive one from the adit to the 126, and nothing has been done below this level between the two cross-courses; the price for driving is 2*l.* 5*s.* per fathom. In the cross-cut south from Rogers's shaft, at the twenty-nine fathom level, we think the lode is not far distant, having met with small quantities of ore in the country—the ground still continues favourable. The pitch working on the caunter lode, at 10*s.* in 20*s.*, is looking very promising. The Druid shaft is still without water, and the ground easy. Our tribute department in tin and copper, in other parts of the mine, are without any material alteration.

A. Eudey.

N.B.—I beg to remark, that, in our report of the 18th January, I stated the tin stuff risen from the tributers working on the caunter lode to have produced 14 cwt. 3 qrs. of black tin per 100 sacks, whereas it was reported in the *Mining Journal* to have produced 14 tons 3 cwt.* per 100 sacks, which, of course, would have made a very material difference in the prospects on that part of the mine. I have reminded you of it, to show that the error did not originate with me.—A. E.

* On again referring to the MS., we find the error was occasioned by the incorrect manner in which the amount was expressed in the copy.

NORTH HOLMBUSH MINING COMPANY.

Feb. 3.—We have, during the past week, cut the lode in the sixteen fathom level, and opened into it five fathoms, but have not as yet reached the south wall, and the cross-cut is still being carried on south in the lode—the whole size of which we hope to report next week; so far as can be seen of the lode, it is chiefly composed of mundic, capel, and peach; the cross-cut is now south of the engine-shaft 4 fms. 3 ft.

T. Richards.

TRELEIGH CONSOLS MINING COMPANY.

Jan. 31.—In the eighty, at Christoe, the sumpmen have been cutting platt, and assisting about bobs, rods, &c. In the fifty fathom level we are preparing for the rods through this level, where the new engine is at work to command the sinking of Christoe shaft. Garden's shaft is below the seventy in the country. The fifty, west of Garden's, is not set—kept in reserve for the bottom men, in case the water should be in. In the seventy, west of Good Fortune, the lode is two feet wide, with a branch of ore seven inches, worth 4*l.* per fathom; in the seventy, east of ditto, the lode is twenty inches wide, and has a kindly appearance, with stones of ore. In the sixty, west of ditto, the lode is three feet wide, looking promising for improvement, worth 10*l.* per fathom; in the sixty, east of ditto, rising from said level, the lode is eighteen inches wide, unproductive. The winze below the fifty west is holed, and now set on tribute at 4*s.* 6*d.*; in the fifty, west of Symons's, the lode is two feet wide, and has a kindly appearance, worth 9*l.* per fathom. In the forty-four, west of ditto one fathom (captain's price 4*l.* 10*s.*), the lode is eighteen inches wide, not much ore. In the thirty-four, west of ditto (the rise holed), the lode in the end is twenty inches wide, but little mineral. In the twenty, west of ditto, the lode is three feet wide, with a branch of ore, mundic, &c., ten inches, worth 6*l.* per fathom; in the adit, west of ditto, the lode is two feet wide, in promising ground, but not much mineral. The water is drained on each lode to the bottom of the mine, and we are again in good course of working; the rough weather retards our surface work.

W. Symons.

GREAT WHEAL MARTHA CONSOLIDATED MINES.

Feb. 1.—In forwarding you a statement relative to our proceedings since last report, I am happy to say, although we cannot as yet boast of a rich course of ore, our prospects are so cheering that I am confident such will ultimately be the result of our operations. At the new mine, in the twenty fathom level, in driving east on course of the lode, we have it six feet wide, one foot and a half of which is saving work, the remainder is composed of spar, capel, mundic, and copper; in the same level, going west, we had also eighteen inches wide, saving work until we intersected the cross-course we had in the level above, this has disordered the lode for the present; we, however, expect favourable results in driving this level west, especially on getting under the ten fathom level, where we have orey ground for this purpose; we have about five or six fathoms to drive, where we expect the ore not only holding down, but will be more productive and of richer quality. In the ten fathom level west we have passed through about ten fathoms of orey ground, and the end we are now driving is still improving; we are carrying about five feet of the lode in width, and have now a leader of about two feet wide, saving work, and the remainder of the lode orey throughout. The deep adit is driven about fourteen fathoms north of the lode, and, from the increase of water, we expect we are getting near the Wheal Martha lode. At the higher mine, the engine-shaft is sunk 6 fms. 4 ft. under the seventy; the lode is six feet wide, composed of spar, mundic, and good stones of copper ore, which appears to be coming from the eastern shoot we had in the fifty fathom level; we expect an increase of ore when the shaft is sunk sufficiently deep to intersect the western shoot, as the two shoots of ore will then meet, this being the principal object of sinking the shaft. In the seventy fathom level we are still driving under the lode west. In the forty east the lode is still small, but we expect a favourable change shortly, in consequence of the end giving out more water.

T. Penaluna.

TINCROFT MINING COMPANY.

Feb. 3.—I beg to hand you my report of the state of these mines. The lode in the engine-shaft, sinking below the eighty fathom level, is large, producing good ores. We have not yet seen the lode beyond the cross-courses in either of the eighty ends, but are daily expecting to find it in the east end, as the water is increasing as we drive. The lode in the seventy east is two and a half feet wide, orey throughout, and very kindly; the lode in the seventy west is 20 in. wide, nine inches good ore, worth about 15*l.* per fm. The lode in the sixty east is two feet wide, worth 8*l.* per fathom. The lode in the fifty west is eighteen inches wide, orey; the pitches in this part of the mine continue to produce good work. At Palmer's shaft, on East Pool lode, we have twelve men stoping the back of the forty-eight, and six men stoping the bottom; here we are raising ore very expeditiously, and shall continue to do so for some time. We have ore in Palmer's shaft, sinking under the sixty, on East Pool south lode, which we expect will fall in with the main lode at or a little under the seventy, where we calculate on an improvement; the lode in the winze, sinking under the sixty, to the west of the shaft, is twenty inches wide, producing some good ores, and very promising; the sixty end west is at present unproductive, being near the cross-course. The winze sinking under the forty-eight, to the west of the cross-course, is producing some good quality ore. On the whole, our prospects are good.

W. Paul.

UNITED HILLS MINING COMPANY.

Feb. 4.—In the eighty fathom level, in the eastern end, the lode is five feet wide, two feet ore of fair quality; in the western end the lode is three feet wide, one foot on the north part good ore. In the seventy fathom level, in the eastern end, the lode is three feet wide, eighteen inches on the north part ore of average quality; in the western end the lode is four feet wide, orey throughout, but coarse in quality. In the sixty fathom level, in the eastern end, the lode is three and a half feet wide, two and a half feet good ore. West of James's shaft the lode is four feet wide, two feet ore of average quality; in the winze sinking below this level the lode is four feet wide, three feet very good ore. In the fifty fathom level no alteration in the cross-cut since last reported; the lode in the winze is three and a half feet wide, two feet on the north part producing good ore. In the thirty fathom level the lode is two feet wide, producing some good stones of ore. In the ten fathom level the lode is still unproductive.—At Wheal Sparrow, in the fifty fathom level, eastern end, the lode is three feet wide, producing some good ore, with a promising appearance; in the western end the lode is eighteen inches wide, orey throughout, but not rich. In the forty fathom level, in the eastern end, the lode still continues small, and not producing much ore; in the western end the lode is eighteen inches wide, eight inches ore of fair quality; in the winze the lode is eighteen inches wide, six inches good ore. In the thirty fathom level the lode is twenty inches wide, one foot ore of average quality. In the ten fathom level, on Stacey's lode, the lode is one foot wide, seven inches ore of good quality.

T. Trevenen.

CONSOLIDATED TRETOIL MINING COMPANY.

Feb. 3.—The lode in the sixty fathom level, west of Henwood's shaft, is nine inches wide, producing some good ore; price for driving, 8*l.* per fathom; the lode in the sixty fathom level, east of ditto, is fourteen inches wide, worth 5*l.* per fathom; price for driving, 6*l.* per fathom—tribute when set, 9*s.* in the 1*l.* The lode in the rise, in the back of the fifty fathom level, east of ditto, is eighteen inches wide, worth 5*l.* per fathom; price for rising, 3*l.* per fathom. The lode in the forty fathom level, east of ditto, is twenty inches wide, producing a little ore; price for driving, 2*l.* 10*s.* per fathom.

H. Williams. J. Morcom.

CALLINGTON MINING COMPANY.

Feb. 3.—At the 90 fm. level, south of Johnson's engine-shaft, the lode is worth 5*l.* per fathom; in the north end it is worth 4*l.* per fathom. In the eighty fathom level, driving north, the lode is worth 10*l.* per fathom; in the south end the lode is worth 3*l.* per fathom. In the sixty fathom level the lode is producing silver-lead ores. At the north mine, in the eighty fathom level, driving south, the lode is worth 5*l.* per fathom. In the seventy fathom level the lode is worth 4*l.* per fathom; the caunter lode, at this level, is three and a half feet big, two feet of it is intermixed with copper ores. In the sixty fathom level the lode has not been taken down in the last week. In the fifty and forty fathom levels the lode is producing silver-lead ores.

J. T. Phillips.

CORNUBIAN MINING COMPANY.

Feb. 3.—We have not yet commenced driving the eighty-six fathom level. Murray's engine-shaft will require a week more to case and divide the shaft, to bring down the whim kibble, &c. At the cross-cut, driving north at the seventy-eight fathom level, we have cut the north lode; in the eastern end, at this place, Chiverton and north lodes are now pretty near together (got into one gunnies); both are promising looking lodes. We have set eleven pitches, employing thirty-seven men on tribute, varying from 7*l.* per ton to 5*l.* During the last week we have made a further trial on the lode going down in the bottom of the eighteen fathom level at Ventongimps, and find it continue to be worth 20*l.* per fathom, but, owing to the great increase of water, we are obliged to suspend all operations below the adit.

R. Rowe.

HANSON MINING COMPANY.

Feb. 3.—I beg to say the ground in the engine-shaft continues favourable for sinking, and is now 5 fms. 3 ft. 3 in. below the forty-four fathom level. The lode in the forty-four east is at present small, composed principally of mundic; in the west end, same level, the lode is two feet wide, composed of mundic, spar, and occasional stones of copper ore. In the thirty-one east the lode continues to produce ores of good quality; the lode in the thirty-one west is at present small. The Garden shaft is now below the twenty-one fathom level 7 fms. 2 ft. 6 in., in which the lode is twelve inches wide, with a little ore. The horse-whim shaft at Treza, is below the surface 3 fms. 2 ft. For particulars of setting, I beg to refer you to setting report.

Z. Williams.

TAMAR SILVER-LEAD MINING COMPANY.

Feb. 3.—We have cleared up the engine-shaft about eight fathoms below the 135 fathom level, and we hope soon to be able to drive the 145 end.

The lode in the 135 fathom level is split into two branches, producing some good saving work.

Ditto 125 ditto—one foot wide, good work.
Ditto 115 ditto—no lode broken since last report.
Ditto 105 ditto—eighteen inches wide, six inches rich work.
Ditto 95 ditto—six inches wide, promising work.
Ditto 85 ditto—nine inches wide, can and ore, good work.
Ditto 75 ditto—one foot wide, unproductive.
Ditto 65 ditto—eighteen inches wide, work of a promising character.
Ditto 55 ditto—two feet wide, caple, with some ore.
Ditto 45 ditto—is in slidy ground, and unproductive.

The incline plane shaft is sunk four fathoms below the seventy-five fathom level, on the incline. We sampled on the 30th ult. 107 tons of rich silver-lead ores, which is for sale on the 8th inst.

North Tamar.—The lode in the fifty fathom level north is small and poor.

Ditto 40 ditto ditto—nine inches wide, good saving work.
Ditto 30 ditto ditto—two feet wide, good work.

Wheal Hancock.—The engine-shaft is sunk nine fathoms below the twenty-seven fathom level; the ground is still very hard for sinking, also in cross-cutting we find the ground very hard, wet, and troublesome.

J. Sprague.

WEST WHEAL JEWEL MINING ASSOCIATION.

Feb. 3.—The 100 fathom level east, on Wheal Jewel lode, is two and a half feet wide, and worth 6*l.* per fathom—driven last month, 4 fms. 0 ft. 6 in.; in the 100 west, on ditto, the lode is nine inches wide, containing spots of ore—driven, 1 fm. 2 ft. In the eighty-five east, on ditto, the lode is disordered by a slide—driven, 2 fms.; in the winze sinking below this level the lode is worth 8*l.* per fathom—sunk, 2 fms. In the winze sinking below the seventy east, on ditto, the lode is worth 8*l.* per fathom—sunk, 1 fm. 2 ft. 6 in.; in the winze sinking below the same level, west of the cross-course, the lode is worth 20*l.* per fathom—sunk, 2 fms. 4 ft. The eighty-five west, on the new lode, is nine inches wide, unproductive—driven, 2 fms. 0 ft. 6 in.; in the eighty-five cross-cut north the ground is favourable—driven, 2 fms. 5 ft. The thirty east, on Moreomb's lode, is three feet wide, containing very good stones of yellow ore. The lode in Wilkinson's engine-shaft is three feet wide, composed of spar and stones of ore—sunk, 1 fm. In the fifteen east, on ditto, the lode is eighteen inches wide, unproductive—driven, 1 fm. 2 ft.; in the deep adit west, on ditto, the lode is not taken down since last reported—driven, 1 fm. 1 ft. 6 in.

Stephen Lean. Richard Johns.

FOREIGN MINES.

ALTEN MINING ASSOCIATION.

Annual Report.—*Alten Copper-Works, Dec.* 17.—In again waiting on you with our usual annual report, it is with feelings of less satisfaction than we at the same period of last year, from the prospects then held out by the different branches of your establishment, could have anticipated. By reference to the monthly ore notes of estimates and returns, the discrepancy in the produce of the year will be found to arise principally from the almost total suspension of the workings on Wilson's lode, and which will be found alluded to in the accompanying mining report. Such a disappointment, and more particularly at the present moment, is much to be regretted; but, under such untoward circumstances as were for a time contended against, we had no alternative, and the difficulty of making anything like accurate estimates for a whole year, under the system we have hitherto been following, of taking away the ore as fast as discovered, must be too obvious to require comment. When the deficiency of twenty-four tons of copper from Wilson's is considered, we venture to hope the following statement of the result of the year's proceedings, exclusive of the London expenditure, will not be considered unsatisfactory:—

Produce.

Total deliveries of ore to the smelting-house, producing in copper	Tons	170,833	
Stock at the mines at Quænvig		3,000	
		173,833	
Less Quænangen deliveries		14,342	
Total	Tons	159,491	
At £80, or $360, per ton			$57,416 3 20

Expenditure.

Mining	$30,190	3 8	
Smelting	21,687	0 19	
Charges	11,099	1 7	
	$62,977	0 10	
Less profit on store	6,033	4 10	$56,943 1 0
Profit at Alten on the year's proceedings			$ 473 2 20

Our opinion of the capabilities of the lodes at the several mines has already, on former occasions, been fully expressed, neither have we, after another year's experience, any grounds for altering it—but, on the contrary, the more we become acquainted with their several localities, and the extent of country, intersected in almost every part with mineral veins, the more are we impressed with their importance, and the necessity of adopting a more judicious and spirited system for developing the treasures which we have every reason to conclude remain dormant in this extensive mining district. In these views we are also supported by Mr. Thomas's report, which accompanies this, as well as by the opinions so frequently expressed by all the practical men who have had opportunities of making themselves acquainted with the mining department. The last order of the board, granting an increased outlay of 100*l.* monthly, for exploring the different lodes, is very opportune, and we shall immediately avail ourselves of your generosity, by commencing such exploratory workings as may be considered most essential in promoting the welfare of your establishment; but, in consequence of the slow progress that invariably takes place in excavating the solid rock, no profitable result can be expected to attend these undertakings for some time. The smelting department has progressed equally, if not more favourable than at any former period under similar circumstances, and is fully explained in the accompanying report from Mr. Neilson, which, speaking for itself, leaves but little requiring comment from us, except, perhaps, as far as regards his views for altering the present system of smelting in reverberatory furnaces, to that of blast; and, however much this gentleman may be impressed with the idea of the important saving of expense which he points out, still, on our present reduced scale, we cannot recommend the adoption of this step, but in case of an extension of the works, at some future time, the experiment might be made. The present scale of smelting charges, low as they are, will, undoubtedly, be still further reduced, by adopting the proposition for the suspension of the smelting operations during the summer months, when a sufficient stock of fluxible ores could be procured from the mines to form judicious mixtures, and thereby enable us to conduct the several processes throughout the winter with greater regularity, and more advantageously than under the present system. Hitherto, many of the mining operations have been suspended during the summer, for the purpose of unloading the coal vessels, to the great detriment of the works, and whilst the smelting-house has been in full work, the consequence of which has been, that the full quantity of ore during that period has not been produced; the whole of the dressed ore has been smelted, and during the autumn and spring the furnaces have been stopped for want of a supply of ore, and as the expense of wages continues nearly the same, we have been obliged at a positive loss to provide some other employment for the men, thereby augmenting the expenditure without obtaining corresponding returns. The saving in the carriage of the ore has also been alluded to, and, by reference to the account of monthly disbursements, an increase of about $80 per month for this item, in the summer, will be found on nearly the same quantity of ore from Raipas alone. The smelting charges on a large mass of low per centage ore as a flux should not be overlooked, and more especially when it is capable of being made more suitable to the purpose by dressing, which, under this system, could be done at trifling expense. The fusion of such a low quality ore will show a result representing the smelting cost at a comparatively low figure; but, when the actual cost is calculated on the metallic copper, a great difference in favour of ores of a higher per centage will be found; we are, therefore, fully convinced that no ores below 3 per cent. can be advantageously smelted, when they are capable of being made better by dressing. On these grounds, therefore, we strongly recommend this proposition to your most serious consideration. The Quænangen Mines, although not directly appertaining to these works, still should not be lost sight of, inasmuch as they now contribute in some measure to assist in carrying on the smelting operations with greater regularity than otherwise. A junction with this place has on several occasions been recommended to your notice, but, in the present financial position of the company, we feel the difficulty of accomplishing this object, however desirable such an arrangement at some future time may be. We shall, in the meantime, continue to watch their progress, and, as a more favourable season advances, Mr. Thomas will take an opportunity of again inspecting them, and further report thereon. Considering the present limited scale of the trading department, the profit on the store is very satisfactory, and we see no cause to apprehend any falling off in this branch of your establishment. In conclusion, it is with feelings of peculiar pleasure, I can bear witness to the zeal and assiduity invariably displayed by every officer on the establishment in discharge of the duties assigned to them, and, assuring you of our constant and earnest endeavours to preserve and merit the confidence reposed in us,

I am, &c., &c., C. Engstrom.

[The Mining and Smelting Reports, which are of great length, and of a particularly interesting nature, will be published in next week's Journal.]

MINE ACCIDENTS.

Moira Colliery.—T. Lakin fell down the shaft and was killed.

Shotton Moor Colliery.—R. Dunn was killed by a fall of stone from the roof.

Melancholy Catastrophe at Hayes Wood, Somersetshire.—As the workmen (about 100) employed by Messrs. James and Co., Timsbury, were at their work, the utmost consternation was produced by an alarm from the extremity of the pit, upwards of a mile from the mouth, that the water was rushing in. The tub affording the only means of escape, the poor fellows had to ascend in batches of about a dozen; some idea of their terror and danger may be conceived from the fact, that, at the time the supposed last lot were secured, the water reached their shoulders! Unfortunately, however, when the excitement had somewhat subsided, from the belief that all had escaped, it was ascertained that fourteen were missing; instant search was made, when it was found that four had escaped through an air-course, but ten are supposed to have met a watery grave.

Locco Ford, Chesterfield.—A. Sanderson was killed by the falling of a piece of timber down the shaft.

Blackbrook Pit, St. Helen's.—J. Whittle fell down the pit, and was killed.

Gerrard's-bridge, Lancashire.—A stone fell on J. Briers while at work in the pit of Messrs. Speakman, Caldwell, and Co., and killed him.

Wheal Robins Mine, near Liskeard.—The adventurers in this mine have lately been greatly cheered by its altered appearance, and the discovery of some rich ores in the forty-four fathom (the lowest) level. Many who held shares therein are still increasing their interest, and many, who some time since sold out, are full of regret. The character of the ore warrants this mine to be now one among the best in the neighbourhood; it has already returned about 1000*l.* worth of copper and tin ores.—There are also several other mines in its immediate vicinity. *Hobb's Hill*, lying north, is said to be very promising; *Wheal Sisters* is now selling at 50*l.* per share; *Wheal Traverna*, also, immediately west, and receiving all the lodes in Wheal Robins, is only separated from it by the river, which supplies both mines with water, and is now become of considerable importance.—*Plymouth Journal.*

SALE OF SHARES, BY AUCTION,

By Messrs. Fuller and Marsh, at the Auction Mart, London.

Hungerford Suspension-bridge (25*l.* paid).—Five shares produced 26*l.* 10*s.* each.

Bolanos Mining Company (established 1826—180*l.* paid).—Two shares sold for 5*l.* 2*s.* 6*d.* each; five others fetched 5*l.* 7*s.* 6*d.* each.

Waterman's Steam-Packet Company (2*l.* 10*s.* paid).—Five shares sold for 2*l.* each; ten others produced 2*l.* 2*s.* each.

COAL MARKET, LONDON.

MONDAY.—Price of coals per ton at the close of the market:—Buddle's West Hartley 17—Carr's Hartley 17 6—Holywell Main 17—Morrison's Hartley 16 6—Nelson's West Hartley 17 6—New Tanfield 16 6—Old Pontop 16 6—Ord's Redheugh 16—Old Tanfield 16 6—Pontop Windsor 16 9—Pott's Primrose 16—Ravensworth's West Hartley 17—South Pontop 16—Tanfield Moor 20—Taylor's West Hartley 17—Townley 17—West Hartley 17—West Wylam 17 6—Wylam 16 9—Wall's End Bell Robson 18—Ramsay 16—Wharncliffe 19 3—Belmont 19 9—Braddyll's Hetton 20 9—East Hetton 18 6—Haswell 21 6—Hetton 20 9—Lambton 20 6 and 20 9—Lumley 19 3—Pemberton 18 6—Russell's Hetton 20 3—Shotton 20—Stewart's 20 6 and 20 9—Caradoc 20 6—Cassop 20 6—Hartlepool 20 6—Hoselden 18 6—Hough Hall 19 3—Brown's Deanery 19—St. Helen's Tees 18—South Durham 19—Tees Hetton 17—Clackmannan 15 6—Cowpen Hartley 17 6—Hartley 17—Morgan Stone 23 6—Sidney's Hartley 17 6—West Hartley Netherton 17 6.—Ships 38.

WEDNESDAY.—Buddle's West Hartley 17—Carr's Hartley 16 6—Chester Main 16 6—Charlotte Main 17 6—East Tanfield 15 6—Hastings' Hartley 17—Holywell Main 16 6 and 17—Morrison's Hartley 16—Old Pontop 16—Ord's Redheugh 16—Pott's Primrose 15 6—Townley 17—West Hartley 17—West Wylam 17—Wylam 16 6—Wall's End Bell and Brown 19—Clark and Co. 17—Clennell 17—Gosforth 19—Heaton 19—Hedley 17—Hotspur 18—Killingworth 18—Newmarch 17 6—Northumberland 18—North Durham 17—Ramsay 15 6—Wharncliffe 18 6—Braddyll's Hetton 20 and 20 3—East Hetton 18 3—Haswell 20 6—Hetton 20 and 20 6—Hylton 18 6—Lambton 20, 20 3, and 20 9—Lumley 19—Pemberton 18 3—Stewart's 20 6—Caradoc 20—Cassop 19 9—Hartlepool 19 9—Kelloe 19 9—Adelaide 20 6—Brown's Deanery 18 and 18 3—Fox 18—Gordon 17—Maclean Tees 17—South Durham 18—Tees 20 3—Woodefield 16—Cowpen Hartley 17—Hartley 16 6—Snapethorpe 18—Sidney's Hartley 17—West Hartley Netherton 17—Ships arrived, 17.

FRIDAY.—Adair's Main 17—Buddle's West Hartley 16 6—Carr's Hartley 17—Hastings' Hartley 16 6—Holywell Main 17—Morrison's Hartley 16—Nelson's West Hartley 17—Old Pontop 16 6—Tanfield Moor 19 6—Taylor's West Hartley 16 6—West Wylam 16 9—Wylam 16 6—Wall's End Clarke and Co. 17—Clennell 17—Gibson 18—Heaton 18 6—Hilda 18—Hedley 17—Hotspur 18—Killingworth 17 6—Newmarch 17—Wharncliffe 18—Belmont 19 3—Braddyll's Hetton 20 3—East Hetton 17 6—Haswell 20 6—Hetton 20 6—Lambton 20 3—Morrison 17 6—North Hetton Lyons 18 6—Pemberton 18—Shotton 20—Stewart's 20 6—Sunderland 18 6—Hartlepool 20—Harvey 15 6—Heugh Hall 18 9—Tenant's Hartlepool 18—Trimdon 19 6—Adelaide 20 3—Barrett 18—Brown's Deanery 17 9—Evenwood 17—Fox 17 6—Gordon 16 9—Seymour Tees 19 3—Tees 20 3—West Hetton 17—Woodefield 16—Clackmannan 15—Cowpen Hartley 17—Garesant Stone 23—Hartley 17—Morgan Stone 20 3—Sidney's Hartley 17.—Ships arrived, 45.

MONTHLY IMPORTATION OF COAL, CULM, AND CINDERS.

January, 1845.

Quality.	Ships.	Tons.	Quality.	Ships.	Tons.
Newcastle	687	234,852	Yorkshire	79	10,993
Sunderland	495	149,783	Small coal	1	346
Stockton	384	115,784	Culm	—	295
Blyth	29	7,846	Cinders	10	2,815
Scotch	16	1,831			
Welsh	49	13,402	Totals	1780	537,855

Imported in Jan., 1844:—Coal, culm, and cinders.....220,603 tons.

LONDON GAZETTE—BANKRUPTS.

TUESDAY.—J. B. Rayner and T. S. Carter, Coleman-street, lamp manufacturers—C. S. Haward, Colchester, grocer—S. Humm, Bethnal-green, silk hat manufacturer—J. Miller, Southampton, bootmaker—T. Weston, Southampton, plumber—J. Ashbarry, Holm Lacey, Herefordshire, farmer—W. Aston, sen., Aston-juxta-Birmingham, victualler—J. Whitlow, Manchester, laceman—J. Heginbotham & G. Peck, Manchester, machine makers.

FRIDAY.—J. Beard, Deptford, builder—G. Haywood, Luton, Bedfordshire, bricklayer—W. H. Colt, Long Melford, Suffolk, grocer—S. Rugg, Southampton, carpenter—James Bradshaw, High-street, Camden-town, coal merchant—S. Taverner, Sovereign-mews, Paddington, bricklayer—J. Richardson, Fish-street-hill, City, boot and shoe maker.

Current Prices of Stocks, Shares, & Metals.

LATEST PRICES OF IRISH STOCKS.—3 per Cent. Consols, 100*l.* to 99½*l.*; 3 per Cent. Reduced, —*l.*; 3½ per Cent. Stock, 103*l.* to 103½*l.*; 3½ per Cent. Debentures, —*l.* to 95½*l.*; Bank Stock, 217*l.*—Dublin and Kingstown Railway, 237½*l.*; Drogheda, 80*l.*; Gt. Southern & Western, 12½*l.*; Dublin and Belfast Junction, 6½*l.*; Dublin and Athlone, 4*l.*; Dublin and Galway, 9½*l.*; Belfast and Ballymena, 4½*l.*; Limerick and Waterford, 5½*l.*; Dundalk and Enniskillen, 3½*l.*; Wexford and Carlow, 3½*l.*—Hibernian Bank, 35*l.*; National Bank of Ireland, 15½*l.*; Royal Bank, 14½*l.*; National Insurance, 40*l.*; Patriotic, 11*l.*; Mining Company of Ireland, 13½*l.*; Wicklow Copper Mine, 19*l.*; City of Dublin Steam Company, 111*l.*; British and Irish Steam Company, 55½*l.*; Dublin and Glasgow ditto, 44*l.*; Steam-ship Building ditto, 54½*l.*

LEEDS, THURSDAY.—Those half dozen railways to which we so pointedly alluded to in the month of November last, and whose dividends we then had made out by calculations, based upon the traffic at that time so far known—how do they stand at present?—exactly as we predicted they would do! So far as the report and the accounts have come out—viz., the Midlands pay 3 per cent. the last half-year; the Great North of England pays 3 per cent.; the Brighton pays 3 per cent.—all of which tally exactly with our expectations. The remaining three—the Manchester and Leeds, the Hull and Selby, and, lastly, the South-Western—what will they pay? or, rather, what will they have earned? The first of these three will have earned 5 per cent. during the past half-year; the second within one-eighth of 4 per cent.; and the last 2*l.* 2*s.* per share, but, perhaps, will only pay 2*l.* All these calculations, or, rather, the results of them, we sent to at least a dozen of our correspondents—all of whom can testify to the correctness of what we say. Any one knows, that is the least conversant with what is passing in the share market, what signal advances have taken place in these six particular stocks during the past three months; in the Manchester and Leeds full 35*l.* a share; in Hull and Selby only about 8*l.*; in Midlands full 20*l.*; in Great North of England more than 48*l.*; in Brightons full 10*l.*; and, lastly, in South-Westerns about 15*l.*, including the new shares. These advances we look upon in round numbers. The decision of the Board of Trade in the Yorkshire lines has given anything but satisfaction to the inhabitants of the district; the West Riding Company are looked upon generally as intruders; and, at a meeting of the West York, held at Halifax yesterday, it was determined, by a most influential and enthusiastic meeting, that a body of men, composed, as the provisional committee is, of the wealthiest and most powerful individuals connected with trade in the whole county, could never suffer themselves to be domineered over by the Leeds and Manchester directors; and that they themselves to be domineered over by the Leeds and Manchester directors; and that they themselves to be domineered over by the Leeds and Manchester directors; and that they

The Mining Journal.

No. 494.] ENLARGED SHEET. [FEB. 8.

THE MINING INTEREST.—At a MEETING of LORDS, ADVENTURERS, and other PERSONS INTERESTED in CORNISH MINES, held at Pearce's Hotel, Truro, the 31st day of January, 1845,

J. H. TREMAYNE, Esq., in the chair,

the following RESOLUTIONS were passed *nem. con.*:—

Proposed by J. T. Treffry, Esq., seconded by Edmund Turner, Esq., M.P.,

That it is the opinion of this meeting, that any reduction of the existing duties on the importation of foreign copper ores would be altogether unjust towards the mining interests of this country, and is not required or warranted by any circumstances connected with the trade in copper since the establishment of the present scale of duties by the tariff of 1842.

Proposed by John Ennis Vivian, Esq., M.P., seconded by Edwin Ley, Esq.,

That it is expedient to appoint a deputation, to assist with their advice the members of both Houses of Parliament, who may be called upon to confer with the Board of Trade, and if necessary to afford their presence in London.

Proposed by P. Vyvyan Robinson, Esq., seconded by Richard Davey, Esq.,

That the said deputation do consist of the following gentlemen:—

Mr. MICHAEL WILLIAMS, | Mr. TREFFRY,
Mr. ALFRED FOX, | Mr. JOSEPH CARNE, and
Mr. JOHN TAYLOR.

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Proposed by W. Baynard, Esq., seconded by S. Moyle, Esq.,

That these resolutions be printed in the Cornish papers and the *Mining Journal*.

Proposed by Richard Taylor, Esq., seconded by the Rev. Canon Rogers,

That a contribution be requested from the copper mines of this county of one farthing in the pound on the value of the sale of two months' ores next ensuing, for the purpose of defraying the expenses of the deputation on mining purposes, and to be paid to the former treasurer.

Proposed by J. T. Treffry, Esq., seconded by the Rev. Canon Rogers,

That the thanks of this meeting be offered to Sir Charles Lemon for the manner in which he has conducted the correspondence with Mr. Gladstone, and for the information he has afforded to this meeting.

Proposed by Michael Williams, Esq., seconded by Barclay Fox, Esq.,

That the thanks of this meeting be offered to the members of the county and other members of both Houses of Parliament, for their valuable exertions and assistance afforded to the late deputation.

Signed on behalf of the meeting,

J. H. TREMAYNE, Chairman.

Proposed by E. W. W. Pendarves, Esq., M.P., seconded by W. Baynard, Esq.,

That the best thanks of this meeting be presented to J. H. Tremayne, Esq., for the able manner in which he has presided over the meeting.

CWMORTHIN SLATE COMPANY.

Capital, £100,000; in 10,000 shares, of £10 each. Deposit, £1 10s. per share.

PROVISIONAL COMMITTEE.

Fred. Ramsden, Esq., Manchester. | W. B. Chorley, Esq., Tremadoc,
J. C. Ridge, Esq., ditto. | Joseph Adshead, Esq., Manchester.

(With power to add to their numbers).

BANKERS—London and Westminster Bank.

SOLICITORS—Messrs. Roy, Blunt, and Co., Lothbury.

SECRETARY—Thomas A. Corlett, Esq.

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This company is formed for working the Cwmorthin Quarry, situate thirteen miles from Portmadoc, twenty-five miles from Carnarvon, containing the same veins of slate as those of the most celebrated slate quarries in Merionethshire, and capable of being rendered one of the most extensive in that county.

The quarry has been fully proved, and worked to some extent—the nature of the metal has been efficiently tested, and found to be of a superior quality; it, therefore, only remains to raise capital sufficient to render the production commensurate to the outlay, the return of which cannot fail to be highly remunerative.

The present tenants hold under a forty years' lease, and arrangements have been made whereby the fee simple can be bought upon most advantageous terms, on the acquisition of which the quarries might be worked without charge of royalty or any interference. In addition to the slate veins, this estate contains about 200 acres of land, available for various purposes connected with the works—while, for working the machinery to saw and plane slate, a fall of water supplies all the necessary power.

To carry out the objects of this company, it is proposed to raise £100,000, in 10,000 shares of £10 each, under the following regulations:—

A deposit of £1 10s. per share to be paid on allotment of the shares, for which a receipt will be given, exchangeable for the certificate of the company; and a further instalment of £3 per share in January, 1845, and £1 10s. per share payable in April.

No dividend to be declared for the space of two years from November 1, 1844; but the shareholders to receive interest at the rate of £4 per cent. per annum upon the calls made from the date of payment of such call.

The purchase of the leasehold and fee simple of the quarry, including the works, materials, and stores on hand, &c., may be estimated at £30,000; to which add the further expenditure and outlay for three years, in further clearing and extending the works, £10,000; with branch line of railway, cottages, materials, management, &c., £6500;—making a total of £46,500.

After the first three years, the quarry should produce about 10,000 tons per annum, with a profit of nearly 15 per cent. on the above outlay, which profit may be expected continually to increase, as the quality of the slate improves the deeper the vein is worked.

Prospectuses, with further information, to be obtained from the secretary, at the company's offices, New Adelphi Chambers, to whom applications for shares should be made, in the following form:—

I request you will allot to me shares, of £10 each, in the Cwmorthin Slate Company; and I hereby undertake to accept the same, or any less number allotted to me, to pay the deposit and all further calls duly made thereon, and to sign the company's Deed of Settlement when required. Dated the day of 1845.

Name .....
Residence .....
Profession .....

Name, residence, and profession of a referee.

SOUTH METROPOLITAN PURE WATER COMPANY.

REGISTERED PROVISIONALLY.

Capital £300,000, to be increased to £430,000, if deemed expedient, in shares of £10 each. Deposit 10s. per share.

TRUSTEES TILL THE ACT IS OBTAINED.

Robert Biddulph, Esq., Charing-cross. | Thomas Grissell, Esq., Lambeth.
Henry Weston, Esq., Borough Bank.

PROVISIONAL COMMITTEE.

CHAIRMAN—JAMES HORNE, Esq., F.R.S., Assoc. Inst. C.E., &c., Clapham-common.

Henry Bird, Esq., Haverstock-hill | John Hunt, Esq., Lambeth
Hugh Bowditch, Esq., Norwood | Arthur B. Markham, Esq., Acton
J. B. Byron, Esq., Lambeth | C. Norris, Esq., Lancaster-place
E. Doubleday, Esq., Blackfriars-road | Benjamin Shaw, Esq., Kilburn Priory
T. England, Esq., Surrey-square | H. Simonds, Esq., Reading, Director of
Capt. Ewbank, Charles-street, St. James's | the Great Western Railway
W. Joshua Tilley, Esq., Blackfriars-road.

BANKERS.

Messrs. Cocks and Biddulph, Charing-cross.
Messrs. Weston and Young, Borough Bank.

ENGINEER—James Easton, Esq., the Grove, Southwark.

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JOINT SOLICITORS.

Messrs. Birch and Bramah, 6, Great Winchester-street.
John Galsworthy, Esq., 19, Ely-place.

This company is established for the purpose of affording to the inhabitants of the south side of the Thames a pure and abundant supply of water. It is to be taken from the River Wandle, but in such a manner as to avoid all injury to the mill and other property on the stream, and the heavy compensation consequent thereupon, which has hitherto proved the great obstacle to the use of its water for the purposes proposed.

All impurities, of whatever description, now finding their way into the Wandle will be conveyed elsewhere, and the water in this perfect state will be taken above the tide mill at Wandsworth (where will be erected the necessary works), and thence pumped to reservoirs on Wandsworth-common and Brixton-hill, where an elevation is found sufficient for the most efficient supply to the districts in question.

The waters of this river have been pronounced by unquestionable authority to be the purest and most wholesome in the neighbourhood of London, and their abundance has again been tested during the past summer; the result shows that not less than 24,000,000 gallons flow daily into the Thames—a quantity equal to four times the daily supply of the three existing water companies south of that river.

The abundance of water, added to a very general opinion that it would be eagerly taken in other parts of London now supplied from the Thames, has determined the projectors to cross that river at Battersea, and extend to the inhabitants of Chelsea the luxury of wholesome water. Accordingly estimates have been made, and the Standing Orders of Parliament complied with, so as to enable the company, if the increased amount of capital above-mentioned be subscribed, to carry out this object.

Personal application has proved that an ample tenantry will be obtained, so as to guarantee the receipt of a large and increasing dividend.

Prospectuses may be had of, and application for shares made to, either of the solicitors, and Messrs. Edward Ellis and Co., 53, Threadneedle-street.

FORM OF APPLICATION FOR SHARES.

To the Provisional Committee of the South Metropolitan Pure Water Company.

Gentlemen,—I request you to allot me shares in your proposed company; I will accept the same or any less number, and pay the deposit thereon, and sign the necessary Parliamentary and other contracts when required.—Dated this day of , 1845.

Name .....
Address .....
Occupation .....

LA'MERT ON DEBILITY, NERVOUSNESS, AND ALL DISORDERS ARISING FROM EXCESS, &c.

"No who in pleasure's downy arms | A hero lives, and justly can
Ne'er lost his health, or youthful charms, | Exclaim, 'In me behold a man!'"

Just published, the Seventh Edition, in a sealed envelope, price 2s. 6d.; or free by post to any address, for 3s. 6d.

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SELF-PRESERVATION: A Popular Essay on those concealed disorders of the generative system, originating in solitary habits, youthful excess, or infection, and terminating in local and constitutional weakness, nervous debility, melancholy, incapacity, gonorrhœa, syphilis, indigestion, insanity, consumption, &c., with plain directions for their treatment and cure. Illustrated with cases. By SAMUEL LA'MERT, consulting surgeon, 9, Bedford-street, Bedford-square, London; Honorary Member of the London Hospital Medical Society, Licentiate of Apothecaries Hall, London, &c.

"The various positions of lover, husband, and parent, are the inherent privileges of mankind, and, but for the accidents of mortality, would be awarded equally to all. To such, among others, this essay addresses itself; and, by its perusal, many questions may be satisfactorily adjusted that admit of no appeal, even to the most confidential friend."—*Stafford Gazette.*

Sold wholesale by S. Gilbert, 51 and 52, Paternoster-row; retail by Starie, 23, Tichborne-street, Quadrant; Hannay and Co., 63, Oxford-street; and Gordon, 146, Leadenhall-street.

At home daily, from nine to three, and from five till eight; and immediate replies sent to all letters, if accompanied by the consultation fee of £1 for advice, &c.

9, Bedford-street Bedford-square, London.

ANDALUSIAN MINING ASSOCIATION,

Registered under the 58th section of the 7th and 8th Vic., cap. 110.

BOARD OF DIRECTORS.

Samuel Brown, Esq. | Lieut.-Colonel C. F. Head.
William Alleyne Culpeper, Esq. | Henry H. Parish, Esq.
Lieut.-Colonel G. D. Hall | Richard Taylor, Esq.
Major Lewis A. Hall | S. Walcott, Esq.
Major Thomas G. Harriott | Captain Tyndale.

(All of whom, with one exception, hold 20 shares and upwards of £100 each.)

BANKERS.

London.....Messrs. Weston and Young.
Seville.....Messrs. Cahill, White, and Beck.

AUDITORS—Major L. A. Hall; Michael Collin, Esq.

STANDING COUNSEL—W. M. James, Esq., 6, Stone-buildings, Lincoln's Inn.

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CHIEF SUPERINTENDENT IN SPAIN—Mr. Frederick Burr.

SECRETARY AND SOLICITOR—John T. Wright, 15, London-street.

This association was formed about two years ago, under the title of "the Villaverde Mining Association," for working a lead mine in the neighbourhood of Seville. A considerable amount of work has been done in this mine, and the operations are now driving on a large vein of promising character, which gives every reason to believe that a bunch of ore is close at hand. The samples of ore on assay in this country gave 75 per cent. lead, with a small admixture of silver.

In the course of last summer the association acquired four additional lead mines and eight valuable copper mines in the province of Andalusia, in all of which a certain amount of preliminary work has been effected towards laying open the veins and ascertaining their value.

The following passages from recent reports of Mr. F. Burr, the company's experienced superintendent in Spain, relative to such of the mines as have been examined, will sufficiently convey the best idea of their character and indications:—

1. This mine is upon a noble vein, and one which offers great facilities for working. We found the discoverer's description fully borne out by the reality, the vein being of enormous size, cropping out to the surface in large rocks, in places seven or eight feet high, and producing good stones of lead ore, where cut into by a small stream. Besides this, other parts of the vein were deeply tinged with green carbonate of copper; and yet, extraordinary to say, this magnificent vein was wholly untried, though an opportunity was afforded by the intersection of a deep barranco (ravine) of laying it open to a considerable depth by a level, at a comparatively small expense. I doubt, indeed, whether in any other country in Europe (and I am acquainted with most), a vein could be found untried which showed at the very surface such unusual indications of mineral wealth.

Its size cannot be stated with accuracy, but it is certainly not less than from ten to twelve feet, and probably in places even more. The shaft had hardly penetrated half way through the lode, but the yellow copper ore was increasing in quantity, and becoming more strongly mixed with the veinstone—affording every indication of a bunch of ore being not far distant. The vein may not only be tried, but, to a certain extent, brought into an effective state of working in a space of time not likely to exceed a year and a half, and with an outlay which could hardly exceed £2000 to £3000. It is intersected by a great vein of lead, rich in silver.

2. In this mine the vein does not at this point exceed a foot in width, but of this some inches are a continuous vein of rich copper ore, worth, I should say, £15 to £20 per ton.

This mine promises well, and as we are already in a bunch of ore, may be looked to as likely to give early returns.

3. In this mine the ore is a rich oxide of iron, without any mixture of spar or earthy matter, and containing, I have no doubt, 60 or 70 per cent. of metal. Of this ore thousands of tons might literally be quarried out by mere open cutting. Judging from analogy, there is every reason to believe that copper lies below (the iron vein), as this vein presents, although on a smaller scale, exactly the same appearances which the Rio Tinto must have done previously to its being worked. Should the vein make copper in depth, it will certainly form a very productive and lasting mine, very similar to that of Rio Tinto, which, after so many centuries of working, still remains unexhausted. This mine is in the immediate neighbourhood of the celebrated Rio Tinto Mines, belonging to the Spanish Government, but leased to private parties, and stated to produce 300 tons of fine copper annually.

4. This mine is one the success of which may be looked upon as established. We have here a bunch of yellow copper ore within a few yards of the surface, with every indication of its continuance and expansion into a valuable mass in depth. The work done by the company in this mine consists of sinking a shaft eleven yards below the old works, in doing which we have found a leader or regular vein of yellow copper ore, intermingled with the green carbonate, and about four inches in width. About a ton of ore was broken in sinking the lower part of the shaft, where we were in whole ground; the value of it may be £12 to £15 per ton. It is added, that not more than £1500 to £2000 will be required to put the mine in a productive state, and that the time could not possibly exceed a year and a half.

5. The copper vein in this mine is in continuation of the one now in produce in the adjoining mine, worked by native proprietors.

6. The lode here is in width about twelve feet, chiefly composed of gossan and porous calcareous spar. That this immense lode is in depth rich in copper seems the fair inference from all that can be seen of its upper portion.

If the lodes hold down in depth, as they promise on the surface, the success of a valuable mine would then be established. The expense of this trial, as that of the other mines in this district, I can at present only roughly estimate, but should not imagine, that previous to meeting with some decisive result, an expenditure of more than £1200 to £1500 would be required.

7. It is evident, that a large quantity of metal, apparently copper, has here been extracted. I am informed, also, that this slag has been found on assay to produce gold, thus rendering it probable that substances still more valuable than copper were obtained here.

8. This vein is two and a half feet wide, promising in appearance, and containing green and yellow copper ore.

From these statements, it will be seen, that according to the estimate of a most able and experienced mining engineer, on the spot, the average expenditure for bringing the mines to a productive result will be about £2000 each, and the time required about a year and a half.

The mines, with one exception, are held under the Spanish Crown, for such period as the association may choose to work them, according to the mining laws of Spain, by which the rights of foreigners are especially protected, whatever political changes may affect the Government. The property can be sold or transferred, as if owned by natives, and, in case of war even, is exempt from confiscation. The royal dues are far more moderate than those generally rendered in this country, being 1-20th.

This property, therefore, whether considered in reference to the extent of the veins, the variety and richness of the ores, the general indications of metallic abundance, the geological formation of the district (which allows the works to be carried on by means of drifts or adits, without the necessity of expensive machinery), or the cheapness of labour, justifies the sanguine expectations which are entertained of highly valuable returns. At the same time, any of the mines, that, on further progress, fail to sustain the present anticipation of profitable results, will not be proceeded with.

Besides its mining property, the association possesses, also, on the banks of the Guadalquiver, on an advantageous site, accessible to vessels of 200 tons burden, smelting and refining works, on the eve of completion, which will be in operation in the course of next month, and are so designed as to be capable of extension for all the metallurgical and manufacturing purposes now in contemplation. These works are not dependent for ores on the mines of the association.

In addition to the valuable services of the superintendent above-named, the company enjoy the advantage of the local co-operation of an influential Spanish proprietor, personally known to the directors, who resides in the vicinity of the property.

They have likewise always received the ready assistance of the provincial authorities—whilst the neighbouring proprietors and population regard the undertaking with the most friendly disposition, as promoting their own immediate advantage.

This combination of native industry and interest with British skill and capital, in a district whose immense metalliferous resources have for centuries lain dormant, affords the best guarantee for the stability and success of the enterprise.

Thus circumstanced, the association, desirous of carrying on their operations on an extended scale, and with increased activity, have determined on enlarging their capital, by the creation of 200 new £100 shares, in addition to the 600 into which the property is at present divided. These shares will be issued in quarters, the price of which is fixed for the present at £35 per quarter share, and on each a deposit of £10 will be required at the time of allotment, and for which a scrip receipt will be given.

The Deed of Settlement, under which the association are acting, is so framed as to protect shareholders, as far as practicable, from all risk or liability. The association, moreover, conducts its affairs on the principle, rigidly observed, of never allowing their outlay to exceed the capital in hand.

The following are estimates, framed with as much accuracy as the subject will permit, of the profits that may be expected to be in course of realisation when the enterprise is in full operation:—

The annual net profits on the smelting and refining of argentiferous lead ores alone, of which the neighbouring mines afford an ample supply, are calculated at £10,000, affording a dividend on each £100 share of 12½ per cent.

In regard to the profits to be derived from the mines themselves, the association, impressed with the fluctuating and uncertain character of such property, decline the responsibility of stating any definite amount of return; but, in hazarding the following estimates, they feel confident of their being considered based on a low computation, especially when it is borne in mind, that the average net profits of a good copper or lead mine in full operation, in this country, are from £20,000 to £60,000 per annum—and that the realisation of such a prize is here extended over thirteen chances.

ESTIMATE FOR THE MINES.

Say that the thirteen mines give the moderate yield of 2600 tons of ore per year—of which, 1200 tons, say, are from the lead mines, and 1400 tons from the copper:—

Taking the value of 1200 tons of lead ore at the low price of £5 per ton, gives annually	£6,000
And 1400 tons of copper ore, at the equally low sum of £10, gives	14,000
Total annual value of ores from the mines	£20,000
Add smelting and refining profits	10,000
	£30,000
The present total expenditure of the association, for its official establishment in England and Spain, is £800 per annum, to which add, for future annual expenditure on the mines, £9000—say	10,000
Leaving annual profit	£20,000

Or 25 per cent. dividend on each £100 share.

In this statement are not included the profits on the smelting and refining of copper ores, on the manufacture of the metals, the rumoured probability of reduction of the duties in Spain on foreign coal, to favour native interests, and other items, of which the notice in detail is beyond the limits of a public advertisement.

Applications for shares, according to the subjoined form, to be made to the secretary, at his offices, 15, London-street, Fenchurch-street, where further information may be obtained, and where specimens of the ores may be seen.

FORM OF APPLICATION FOR SHARES. , 1845.

To the Directors of the Andalusian Mining Association.

Gentlemen,—I have to request you will reserve and allot to me quarter shares in the capital stock of your association; and I hereby agree to pay the deposit of £10 upon each quarter share you may allot to me, and to execute the Deed of Settlement of the association.

Name .....
Residence .....
Profession .....

MEETING OF THE LORDS, ADVENTURERS, AND OTHERS INTERESTED IN THE COPPER MINES OF CORNWALL.

[From the *Penzance Gazette.*]

In consequence of a report that an application is about to be made to Government to consent to a further reduction in the duties on Copper Ores imported into this country, a public meeting took place at Pearce's Hotel, Truro, on Friday week, for the purpose of nominating a deputation of men practically acquainted with the subjects to be discussed, to assist with their advice the members of both Houses of Parliament in their communications with the Board of Trade on the subject. The meeting was very fully attended by gentlemen from all parts of the county, amongst whom we noticed Sir C. Lemon, Bart., M.P., E. W. W. Pendarves, Esq., M.P., Edmund Turner, Esq., M.P., J. Ennis Vivian, Esq., M.P.; Messrs. J. H. Tremayne, R. Taylor, J. Batten, M. Williams, H. Williams, J. S. Enys, E. Ley, R. W. Fox, J. Fox, R. Davey, S. Davey, J. Roscorla, R. Harvey, E. H. Rodd, J. N. R. Millett, R. R. Broad, P. V. Robinson, W. T. Chapple, J. Lyle, J. Bull, G. N. Simmons, S. Higgs, H. Lamb, J. P. Magor, H. P. Andrew, W. Vice, P. Clymo, J. J. Borlase, F. Passingham, E. Hawke, J. Vivian, J. Baynard, T. Treloar, H. S. Stokes, H. S. Powell, W. Baynard, J. L. Kirkness, S. Kendall, S. H. James, Rev. Canon Rogers, Rev. J. Collins, Capt. Francis, Capt. Kempe, &c., &c., &c.

On the motion of Sir CHARLES LEMON, seconded by J. E. VIVIAN, Esq., JOHN HEARLE TREMAYNE, Esq., was called to the chair.

In opening the business of the meeting, the CHAIRMAN observed that his interests in mining were not so great now as they had been, and he wished some other person had been named to preside over the meeting, who was better acquainted with the subject to come before them than he was. In alluding to the correspondence which has taken place between Sir Charles Lemon and Mr. Gladstone, of the Board of Trade, on the subject of the reduction of the duty on foreign copper ores, the chairman considered that it had been carried on with great ability on the part of the hon. baronet, and as the matter had now assumed rather a serious aspect, it became necessary that their members should be strengthened by receiving the support and assistance of the county in bringing the question before the Board of Trade. He thought that no Government would sanction the entire abolition or reduction of the duties in the face of the fact that in the year 1844 the quantity of foreign copper ore sold was greater than the ore sold in Cornwall—and the value of the foreign ore had equalled the British. That fact had tended to lower the standard, and he considered that would be an unnatural Government that would consent to an abolition of the present protective duty, through the combination of persons interested in effecting such a change.

SIR CHARLES LEMON informed the meeting that he had received a letter from the Earl of Falmouth, which stated that his lordship's unavoidable absence must not be construed into any indifference on his part as it regarded the subject before the meeting. His lordship had communicated with Mr. Gladstone, who assured him that the Government did not entertain any pre-conceived opinions on the subject, but would act fairly between them and their opponents—that no pledge had been given by the Government in the matter. Sir Charles proceeded to observe that he thought the letter of Mr. Gladstone to Lord Falmouth satisfactory; nevertheless, it should not cause them to relax. Government was reluctant to move in the matter; but if a move were made they should hear it, and it was right they should strengthen their case to the utmost. The correspondence he (Sir C. Lemon) had had with Mr. Gladstone, was at first more in the shape of a private communication than a public one; since, however, he found that he need not keep the correspondence in his pocket, but was at liberty to communicate it to the county and meet the mining interests, in order that their hands might be strengthened in case of a contest with the Government. He had acted with those in whom confidence had been placed on a former occasion, and with his honourable colleague (Mr. Pendarves), and they had all acted in behalf of the mining interests: what had taken place had received their sanction. Some persons were alarmed, and thought that this meeting would affect the standard,—but he did not think so; he thought they could steadily look in the face of what they were threatened with, without emotion. Who regulated the standard? Their case was that of the smelters: those who produce ores would not withhold the supply, and the smelter would be affected by the demand: the standard, then, was regulated by the smelters, who had been informed what the intentions of the Government were, and the miner required help from the smelter. He would avoid anything like an outcry, and with that view he would confine himself to the matter before the meeting—there should be no exaggerated description of the loss to the county that would be occasioned by the removal of the present protective duty. In the first place, he would recommend the appointment of a deputation to assist the members in their duties by their advice and counsel on matters necessary to be brought forward in answer to the Government. On the information from abroad the whole of their case rested. They should take time, and they would be able to prove that the case of the foreign smelters was unsound—they should not give way to false alarms. The state of their county did not require to be considered, it was the means possessed by foreign countries for producing fuel for smelting their ores, and of maintaining rivalry with this country. In reference to the supply of coal in foreign countries, Sir Charles thought that some individuals had too long indulged in the belief that we had the monopoly in reference to fuel—that was not the case; it was the *situation* that gave us the advantage: no country in Europe possessed similar advantages to our own for the purposes of smelting. Suppose a company smelting foreign ores in Staffordshire, could they compete with people in Swansea? The distance the one would have to carry fuel would be a barrier to successful smelting. They were threatened with smelting in France: now, the quantity of coal raised in France in 1814 was 665,000 tons; in 1826, 1,300,000; in 1836, 2,545,000; and in 1841, 3,410,000—so that the increase of coal in France had doubled in 12 years, yet last year the produce of France was not a tenth part of the quantity of coal produced in England, which was 34,000,000 tons. France was increasing her coal mines; and from statistics, Sir Charles clearly showed that the habits of the French had undergone a change as regarded their use of fuel, and that although the supply of coal in that country had increased 65 per cent., their imports had also increased about 130 per cent., occasioned by the dependence of the coast for a supply by sea. From calculations made by Mr. Porter, of the Board of Trade, which were read at the meeting of the British Association held at York, relative to the price of coals in France, it appeared that coal averaged 7s. 9½d. per ton, sold at the pit's mouth—which was just twice the price coal was here. If their iron were smelted by coal bought by us at that price, it would increase its cost 50s. per ton. Their iron was twice the price of ours, and they could not possibly smelt copper at the same rate. The most important point was the *position* of the French coal fields: from official reports, he found that there were five principal coal fields in France, each being a long distance from the sea: four were nearly the whole breadth of the kingdom. From the north basin the coal was sent down the Scheldt to Belgium, and by canals to Paris, which added considerably to the price. A second basin, the Loire, which supplied one-third of the coal of France, lies the whole breadth of that country from the sea, and the coal was sent by railway and long rivers to the Atlantic; others by the Rhone, and so on to the Mediterranean. The other fields were shown to be also disadvantageously situated, and it was demonstrated that England has nothing to fear from smelting ores in France. A gentleman carried on a large copper manufactory in that country, who had purchased of our merchants and endeavoured to smelt the copper for his own use: he failed in accomplishing his object, and again returned to us. A government contract had been entered into for 9,000 tons of coal to be delivered at Toulon; the lowest tender was about nine times more than our smelters pay for their coal. Taking France as an index, there need be no fear on the part of our smelters. In reference to smelting in America, Sir Charles entered into a statistical statement, which showed that although coal is produced in five states of that country, yet the situation of the coal fields was a barrier to the smelters a

America successfully competing with those in England. Pennsylvania produced three-fourths of the fuel raised in the American States—and the pits were at least 150 miles from the coast. It was, therefore, not the quantity nor the quality of the coal raised they should consider, but the *position* of the coal fields. This was the statement of Professor Lyle, which had been confirmed by Dr. Buckland. A gentleman at Falmouth once an American merchant, had stated that all the soft coal was found to the west of the Alleghany Mountains, from whence it was difficult to convey it, and very expensive. There was a canal at the foot of the mountains, by which coal was conveyed to Baltimore. If, then, the smelting of ores were not carried on there, there was little danger of its being entered upon in any other part. Professor Roger's report stated that the coal fields of Pennsylvania extended over 30 counties; consequently, with the great range and the variety of mineral raised, Pennsylvania depended upon England for a considerable proportion of its supply of coal. The price of coal at Baltimore was 5 dollars (22s.) per ton—just seven times more than our smelters paid at Swansea:—there was, he repeated, therefore not the slightest reason to fear successful rivalry in smelting while there was any coal in our territory. Coal was imported into New York and Massachusetts at a price of 6½ dollars, besides the freight—yet they were told that smelting works were to be constructed at Boston! If it were so, they could in no degree rival us. The quantity of copper ore raised in America was small: from the Parliamentary return last year, the United States sent 1,151 tons to be smelted. The idea that Boston, dependent as it was upon this country for fuel, was likely to rival us in the smelting of ores, was, in his opinion, the wildest dream any man could utter. Sir Charles concluded by observing that his only object now was to afford the meeting some information relative to the quarter where he considered the deputation might profitably direct their attention. (Cheers.)

Mr. TREFFRY rose for the purpose of proposing the first resolution—(for which, and those subsequently passed, see advertisement in another column):—Mr. Treffry considered it of the first importance to appoint a deputation to look after their own interests. He did not mean on this occasion to enter too far into the subject, which might have a tendency to create enemies. Mr. T. then gave an outline of the proceedings of the deputation who went to London, on the subject of the import duty on foreign copper ores, in 1842; and read extracts from a letter which he had written to Mr. Gladstone, in June of that year. There had been some difficulty in arranging the amount of import duty, and no less than three tariffs had been proposed, brought about by those interested in the foreign mines. He must, however, exonerate some of the smelters. Before the deputation went to London the second time, they understood the protective duty would be 7*l.* 10s. per ton on all ores. The last tariff proposed that low price ores should be admitted at a duty of 1*l.* 10s., which would be ruinous to the mining interests here. He (Mr. T.) had sent to Mr. Williams, of Burncoose, and told that gentleman that they had decided upon applying for 5*l.* duty on all ores, so as to compromise the matter. As ores were then sent here from so many places to smelt, including Old Spain, he stated that they had to contend against all the world, and before they left asked Mr. Williams's opinion relative to the amount of duty, and that gentleman concurred. Sir C. Lemon was of opinion that 5*l.* duty would not be refused, and recommended a memorial to the ministry. The ministers said his (Mr. Treffry's) proposal was reasonable; the smelters raised no difficulty, and said that 5*l.* duty would keep no ores from this country to be smelted. After an interview with some smelters, who wished the duty to be 4*l.* 10s., which he (Mr. T.) refused, it was agreed that both parties should go to Mr. Gladstone, but he lost the opponents on the road. He informed Mr. Gladstone that he proposed the duty to be 5*l.*, and that gentleman told him he had done his duty in the matter. After returning to Cornwall, he communicated with Mr. Gladstone, and pointed out some facts relative to the tariff; when that gentleman wrote him that by admitting low price ores at a low duty, it would give employment to smelters. Mr. Treffry informed Mr. Gladstone that such a step would be ruinous to this country—that the body of smelters was small compared with the mining body—that it would throw out of employment five-eighths of all the labour—that the lords of the soil and the adventurer would not realise three-eighths per cent.—and that it would exchange the beneficial labour of Cornwall for slave labour in Cuba. Ultimately the present duty was fixed on. He (Mr. Treffry) always thought that ministers would protect British ores—they were bound to give protective duty from the facts of the case, without consulting the foreign miner. He perfectly agreed with Sir C. Lemon, there would be no cause for fear that the ores would be sent out of this country if they were afforded fair protection. Mr. Treffry then entered into a statement showing that the wages of the miner had been decreasing for some years (so far, we understood, as Par Consols are concerned), and he was of opinion that they could not go on much longer even with the present protection. A little further fall in the standard would seriously affect them. Mr. Treffry also gave some statements relative to the quantity and value of copper and tin produced in Cornwall during the past few years, and the amount spent in materials for working the mines—pointing out the great importance of our mines to the county. It had been stated by some individuals that if our mines were done away with, it would be a good thing; but he had not heard what was to be raised up in lieu of them. (Hear.) Mr. T. then referred to some observations that appeared in one of the county papers at the time the last tariff was passed; he hoped, however, that now a better feeling existed—they must be united. It was stated in the article alluded to that the capital invested in mining had not returned 3*l.* per cent., and that it would have been more advantageous to have cultivated the flanks of Brown Willy, or draining the moors and enclosing the wastes near the Jamaica Inn—that the only person benefited was the dealer in the materials—and that ministers would be justified in not allowing any drawback upon timber. He (Mr. Treffry) could say that Government had received 20,000*l.* a-year more than they would have if the drawback had not been conceded. He trusted that the writer of the article was not a Cornishman. Soon after the article alluded to had appeared, the *Standard* newspaper, finding there was disunion in this county, published an apology. Mr. Labouchere had stated the necessity there was for watching the proposed new duties on foreign ores, which would be most injurious to the mining trade of Cornwall, on which a large proportion of the population depended. He (Mr. Treffry) believed that if Mr. Labouchere had been in power then, they should have obtained a protective duty of 7*l.* 10s. per ton. Some smelters had acted for their own particular interest, in opposition to their private opinions. Mr. Treffry next entered into an account of the increase of mining operations and produce in East Cornwall since the year 1809—also the increase of the exports from Fowey of copper and china clay, and the amount paid to that port, which was stated to be larger than any other port in Cornwall, the whole of which would perish with their mines without a proper protective duty. Mr. Treffry concluded by urging on the meeting the necessity of their uniting to keep their present position at least.

Mr. TURNER, M.P. for Truro, rose to second the resolution.

Mr. MICHAEL WILLIAMS rose and observed that it had been stated that the miners and smelters had not been unanimous in soliciting a continuance of protection. It was his opinion that they should, as Cornishmen, be unanimous in requiring the present duty at least. The miner was entitled to the difference there was in the expense of smelting here and abroad. He believed Belgium smelted at the least cost abroad, although that country imported coal; but it was cheaper to bring ores to where coal was abundant, than to carry fuel to where ores were raised. After a consultation between the smelters and foreign miners, the import duty on foreign ores had been reduced to 5*l.* a ton. He had done his utmost to obtain protection—it was his interest to do so—

MR. TREFFRY here observed that the deputation in 1842 could not have received more assistance than had been afforded by Mr. Williams.

Mr. M. WILLIAMS continued—His interest was large as a miner as well as a smelter; for what he had he was indebted to Cornwall, and he felt it to be his duty to continue to do the best he could for the interests of the county—(hear and cheers)—and not turn his back upon Cornwall. He thought this country was fairly entitled to protection. The people concerned in the mines had embarked a large amount of capital upon the faith that the existing protective duty would be continued; and there should be indeed very strong reasons for removing that protection, the abolition of which would ruin them. He would recommend that a strong memorial should be drawn up for the Government, stating the injury such a course would inflict upon Cornwall—and that they were unanimous for the continuance of the present duty. (Cheers).

Mr. ENNIS VIVIAN, M.P. for Truro, fully concurred in the propriety and necessity of appointing a deputation of Cornish miners, whose duty should be to take care that there be not a further reduction of the duty—and also of refuting the allegation that all the miners were in favour of a reduction of the present protection. The large smelters were also said to be favourable to a reduction of the duty—but they could carry on their business without any reduction. He confessed that he felt no alarm as to whether there would be an abolition or a reduction. Mr. Gladstone had frankly and honestly informed them that an attempt had been made to obtain a reduction, and that fact convinced him that the Cornish miner would receive from the Government a fair and just consideration of their case, whenever it should be brought before them. He would now take the liberty to move the next resolution (for the appointment of a deputation). He should have great pleasure in proposing that the gentlemen who formed the deputation in 1842 should compose the deputation on the present occasion; their known zeal and ability in times past warranted their being again called upon.

The resolution was briefly seconded by Mr. EDWIN LEY.

Mr. P. V. ROBINSON had great pleasure in proposing the next resolution, and read the names of the gentlemen proposed to form the deputation.

Mr. RICHARD DAVEY seconded the resolution.

Mr. KENDALL rose and informed the meeting that until that day he had not seen the communication that had taken place between Sir C. Lemon and Mr. Gladstone, which had created so much sensation. As the miner was to die, he thought they were about to commit suicide to give life to the smelters. It was due to Mr. Treffry to state that not a word had passed between him and that gentleman on the subject. He could not help remarking on the extreme courage of the miners, who were going to sacrifice their lives for others—in the proportion of 56 men dying for one. Mr. Williams had made great sacrifices as a smelter for the support of the miner—but he considered it cruel, in naming the deputation, to call upon a gentleman who must be placed in a very unpleasant position.

Mr. M. WILLIAMS said that nothing should induce him to stand in the committee after the remarks that had fallen from Mr. Treffry.

Mr. KENDALL maintained that it would be an anomaly to place a smelter in the deputation. The question was between the smelter and the miner—yet they had called upon Mr. Williams to head the deputation: it was contrary to reason. The other gentlemen were very good men; but no interested party in the reduction of the duties should form a part of the deputation. He would beg to state that what he said was from no personal feeling towards Mr. Williams, but he did think another person should be substituted, and he would move an amendment to that effect.

The CHAIRMAN said he had heard nothing from Mr. Treffry reflecting on Mr. Williams.

Mr. TREFFRY explained, and said that in reading the statement to the meeting he had purposely omitted names. In the communication to Mr. Gladstone on the subject of the duty, he had informed him that if Mr. Grenfell had been as candid as Mr. M. Williams had been, he need not again have troubled him. He (Mr. Treffry) begged to state that no man could have rendered the deputation more valuable information than Mr. Williams; from that quarter they had obtained such information as they could not obtain elsewhere.

Mr. MICHAEL WILLIAMS felt exceedingly hurt, as a smelter, holding so large an interest in the county. He had afforded the deputation such information as neither of the other gentlemen could; he had been most assiduous in collecting information for Sir C. Lemon, in order that the hon. baronet might lay it before the Board of Trade. Had he not taken an active part in the former deputation, he should not have considered it his duty to come forward now. During the past forty years he had always been on the deputations, and, therefore, as a public character he stood before them now. If he had in any respect forfeited their confidence, he very much regretted it; but he could not allow that to be an answer which stated that he was on the same footing with other smelters.

Mr. KENDALL was not assuming there would be any battle between the miner and the smelter; but he repeated that it would be an anomaly to allow the names of the deputation to remain as proposed. He hoped, however, that Mr. Williams would quietly afford information to the mining interests. He did not mean to reflect on the past, neither did he intend anything as a personal remark; but nevertheless he maintained his ground upon principle, and insisted that it would be an anomaly to mix smelters with miners in forming the deputation. He hoped Mr. Williams and the meeting were satisfied.

Sir C. LEMON inquired whether Mr. Williams wished to withdraw his name?—Mr. WILLIAMS answered in the affirmative.

The REV. CANON ROGERS hoped that, after the explanations given, Mr. Williams would allow his name to stand, and that Mr. Kendall would withdraw the amendment.

Mr. R. TAYLOR did not believe they were going to commit suicide. No man was more able or willing than was Mr. Williams to afford them information, and if they went to the Board of Trade without that gentleman, they should go with much less strength than if he were with them. He was a smelter, and would be benefited by the abolition of the duty: he was, likewise, a miner, and therefore should be injured in that capacity. It was most important to possess the evidence which Mr. Williams could give, and most unwise to go without him.

Mr. KENDALL had no wish to disturb the harmony of the meeting, although he felt quite sure that his line of argument was correct. He would, not, however, propose any amendment.

Mr. TURNER, M.P., said that he was a miner, and likely to be more largely connected in mines than at present. He could not believe that Mr. Kendall meant to reflect on the talented gentleman who formed a part of a former deputation. Without the name of Mr. Michael Williams, it would be a deficient committee. He had known that gentleman a quarter of a century, and during that time he had not discovered in him a single feeling adverse to the interests of the county of Cornwall. He had sunk private interests in order that he might protect the natural interests of the county. In reference to Mr. Treffry, the hon. gentleman said that no man was more energetic for the protection of the best interests of the county. They should go to the Government without suspicion, and he was delighted to have the assistance of the smelters. He was quite satisfied that the remarks which had been made were not meant as offensive to Mr. Williams, and he would urge Mr. Williams—he asked him as a personal favour—not to withdraw from the committee.

Mr. TREFFRY again offered a few words in explanation of what he had read relating to the proceedings of the late deputation. Mr. Michael and Mr. John Williams both agreed with him in applying for a duty of 5*l.* He was sorry to hear Mr. Williams say he should withdraw from the committee in consequence of what he had said.

Mr. ALFRED FOX said that in 1842 Mr. Williams had rendered essential service to the cause, and he begged that he would allow his name to remain. He would, however, rather that his own name should be omitted, and that of Mr. T. Bolitho substituted; that gentleman had displayed considerable talent in the matter three years ago. (Cries of "no, no," and "Mr. Michael Williams.")

Mr. M. WILLIAMS considered Mr. Bolitho a very proper person, and wished the meeting would substitute Mr. Bolitho's name for his own. He (Mr. W.) should be glad to afford all the information in his power.

Mr. HUMPHRY WILLIAMS hoped nothing would induce the meeting, nor Mr. Williams, to allow his name to be omitted. By appointing that gentleman as a member of the deputation, it would be a refutation to the odium that the smelters were the only parties moving in this business. It would certainly be anomalous to introduce smelters on the deputation, if that statement were true—but such was not the fact. Anything that was calculated to create ill-feeling between the miner and smelter, was wrong.

The resolution (as it appears in the advertisement), was then put in the usual way, and carried *nem. con.*

The other resolutions were briefly moved and seconded, and Sir C. LEMON and Mr. PENDARVES acknowledged the compliment.

Mr. BATTEN (of Penzance) addressed the meeting on the subject of a Bill in Parliament, brought into the House of Commons in August, 1844, with an intention of being brought forward at the meeting of Parliament. The Bill gave power to the Board of Trade to appoint a registry office in various parts of England, in which *all* mining property, operations, &c., are to be registered. The provisions of the Bill were looked upon with alarm in the west, and considered as inquisitorial as a certain tax they were subject to. He had taken the present opportunity of introducing the matter, for perhaps he might not soon meet so large a body of the mining interests of the county as was then assembled. Probably Sir Charles Lemon was acquainted with the provisions of the Bill?

Sir C. LEMON informed the meeting that he knew nothing about it. If a Bill of the kind had been brought into Parliament, it must have been during the last two or three days of the session. He recollected that in 1838, when the British Association met at Newcastle, application had been made to the Council for them to take some steps to bring before the Government the necessity of their establishing a registry office, in which to register all accidents, &c., in coal mines. A committee was appointed, and ultimately a record office was established in Mr. De la Beeche's museum. The intention was that, in consequence of the many serious accidents in coal mines—in one instance 90 men lost their lives by drowning, from having worked an old mine with which they were unacquainted—some record of the ancient working of mines should be kept. He believed there was no idea then of including other than coal mines. When he returned to Parliament, he and his colleague, Mr. Pendarves, would take the earliest opportunity of inquiring into the subject.

The meeting then separated.

The following is an abstract of the Bill alluded to above, which was laid on the table of the House of Commons at the close of last session, and ordered to be printed—doubtless with the view of its being carried forward as speedily as practicable after the meeting of Parliament. The requirements of the proposed measure are such as the mining interests of this county will consider extremely objectionable. This abstract, it will be seen, was brought before the notice of the meeting held at Truro, by a gentleman of Penzance; and it was previously unknown to nearly all present that such a measure was in contemplation. The county members knew nothing of it, from its having been introduced so late as the 1st of August, immediately before the prorogation, and after most of the country gentlemen left town. Of its origin and parentage we are at present wholly uninformed; but had it emanated from any department of the Government, the intention to introduce it would unquestionably have been communicated to the members from the mining districts. The opinion of the gentlemen at the meeting, and of others interested in the mines, is, that such a measure is quite impracticable:—

ABSTRACT OF THE BILL.

This Bill gives power to the Board of Trade to appoint a Registry Office in various parts of England, in which all mining property whatever is to be registered.

The Registry Office for the counties of Cornwall and Devon is fixed to be at Bodmin. Under its provisions all coal and iron mines are to be registered in the district office belonging to the locality where they are situate, in a particular form set out in the act; and as to mines of copper, lead, tin, and zinc, the 29th section requires that returns should be made of the particulars therein set out, and which section is in the following words:—

"And be it enacted, That all and every the returns to be made in respect of any mines carried on for the exploration or acquisition of the ores of copper, lead, tin, and zinc, shall be made in the manner following, and shall respectively embrace the information, matters, and things following—that is to say, a correct plan and description by proper metes and bounds, and with reference to the surface of the lands in which the mine is situate, of such mine, including such parts thereof as have not been opened or worked, and also a precise description of the places in which any shafts, levels, adits, or other works from the surface to the interior, have at any time been made, such places to be designated in the manner hereinbefore provided with respect to coal mines, and also a correct list and description of the proprietors of the surface of the lands in which any mine, or any part thereof, is situate, and of the lessors, lessees, and proprietors of such mine; and also a correct section of every shaft which shall be sunk or made for the purposes of any such mine, showing the depth and diameter of such shaft, a description of the different rocks or mineral strata which have been passed through, and the thickness of each rock or stratum so far as the same is ascertained, the length, breadth, and direction of all and singular the levels, adits, and works connected with any such mine, the period and particular manner in which any such shaft, level, adit, or other work, was made or continued, the difficulties or obstructions, if any, which were, from time to time, encountered in making the same, and the mode by which such difficulties or obstructions were overcome; and also, a full and correct account of all and every the different veins, lodes, strings, or deposits of ore, which have been worked or opened out for working, so far as the same can be ascertained; distinguishing such veins, lodes, strings, or deposits by their usual names, and describing, from time to time, the character and mineral contents thereof, and of the direction, line of bearing, intersection, and inclination of all and every such veins, lodes, or strings, and of the extent and manner to and in which they have affected or disturbed the adjacent beds, strata, or rocks, and the nature and quality of the ore found therein, and the relative quantity thereof, and its mixture with other mineral products, and the particular mineral beds, strata, or rocks in which such ore has been so found or worked; the full extent to which any such vein, lode, string, or deposit has been worked, the difficulties (if any) in working the same, the reasons for the abandonment or discontinuance of any mine or any part thereof, and the periods in which the workings of the mine or any part thereof were respectively made, abandoned, or discontinued, and also a full and correct account of the actual quantity of ore raised and produced after the passing of this Act, distinguishing, in each case, the particular part of the mine or vein from which such ore has been worked, and the respective years in which the same has been so raised or produced, and also a correct account, from time to time, of the inclination and dip of the different mineral beds or strata which have been respectively worked or observed in the mine; distinguishing, in each case, such beds or strata by their usual names, and describing the thickness, contents, and general character thereof, and of all and every the dykes, fissures, faults, dislocations, slips, and other subterraneous and natural disturbances which have been observed to occur in any such mine, and of the extent and manner to and in which such dykes, fissures, faults, dislocations, slips, and other disturbances have been observed to affect or disturb the rock, beds, or strata of such mine, and also a correct account of the particular manner or system in and under which any such mine, or any part thereof, is worked, and in or under which the mine is freed from water and supplied with fresh atmospheric air, and also a correct and particular account of all and every the accidents which occur from time to time, either to human life or to the workings of the mine, either by the irruption or flowing in of water, or by any other means, and of the precise cause or causes, so far as the same can be ascertained, which produced any such accident, and also a full and particular account of the manner in which any shafts or pits which have been abandoned or disused have been filled up or timbered, or otherwise treated, and of all other mining operations which have been carried on in any such mine. Provided also: That there shall be for every vein, lode, or string, which has been worked, a distinct map or plan, the dimensions of which shall not be more than upon a scale of , nor less than upon a scale of , and upon every such map or plan shall be distinctly and accurately shown the respective parts of every such vein, lode, or string which have been worked."

By the 33rd section of this Act each Register may call upon the proprietors of each mine to make a like return, not oftener than once in every five years, nor less than once in every seven years.

By the 38th section, even if a mine have been abandoned, the Registrar may still call upon the persons who worked it to make a like return of the workings up to the time of its abandonment.

By the 41st section the returns may be verified by a declaration in writing.

By the 47th section the Registrar is empowered, either personally or by other person or persons, to inspect the mines themselves, and examine the returns with the mines.

By the 50th section he is empowered to summon witnesses and to examine them upon oath, and may compel all persons to produce before him, upon oath, all books, plans, maps, writings, and other documents relating to the matters of any such returns.

By the 65th section, any person refusing to attend as a witness, or to deliver any such book, map, plan, &c., is declared to be guilty of a misdemeanour, and to be liable to be punished accordingly.

By the 68th section, every person not delivering such plans, &c., required by the Bill, or delivering false, fraudulent, incomplete, inaccurate, or imperfect plans, is liable to a penalty not exceeding 50*l.*, nor less than 5*l.*

By the 70th section, such penalty may be recovered, with costs, on conviction before two justices, by distress on the goods and chattels of the offending party.

By the 73rd section an appeal is given from the justices to the Quarter Sessions.

The 82nd section provides that if any injury be sustained by the proprietors of one set of mines by the workings of the proprietors of adjoining mines, and if such damage might have been prevented according to approved methods of working, if the party causing the injury had examined the register of the mines and the plan thereof at the registrar's, the injured party might recover by action at law against the other party double compensation for the injury done.

The 86th section gives power to the Board of Trade to alter the forms of the returns directed by the Act, provided their new regulations are not against the express provisions of the Act.

ON GILDING AND PLATING GLASS—HYALITE.

We translate from the *Moniteur Industriel* the following description of the method of gilding, plating, and silvering of glass adopted in Bohemia, and the composition of an opaque glass called "hyalite," by M. Debette:—

GILDING.—In the gilding of glass they use a kind of fine gold, which is dissolved in *aqua regia*, and which dissolution is precipitated by caustic potash, or, rather, by the sulphate of the protoxide of iron. The precipitate which is formed is collected in a filter, well washed with boiling water, completely dried, and then mixed with a little calcined borax finely pulverised; lastly, the whole is reduced into a thick mass, with a little of the essence of terebenthina. It is this mass which is applied on the glass by means of a pencil; the glass is afterwards put into a covered fire at such a temperature as will completely volatilise the essence of terebenthina, and vitrify the borax. The gold thus becomes solidly fixed on the glass, and there remains nothing more to be done but to give it the burnish, which is first done by a polisher made of a blood-stone, then by a burnisher of agate. The glass that is more especially gilded is the red and black, the hyalite, and sometimes the blue and green glass.

SILVERING.—The silvering is managed in the same manner as the gilding; the powdered silver which is required is prepared by precipitating the nitrate of silver with a bar of copper. The silver unites very well, especially with the white, green, and blue glass.

PLATING.—The plating is much less in use than the gilding and silvering, and is performed in the same manner, only having care to replace the gold or silver powder by the double chlorure of platina, and ammoniac well washed.

HYALITE.—This name is given to a glass completely opaque, naturally black, which is noticed for its hardness and remarkable brightness; it unites very well with gold. It may be employed for making vessels destined to hold boiling liquids, such as tea-pots, coffee-pots, &c., without any fear of their breaking. To prepare the black glass, they add to the elements of the white glass a certain quantity of the poor scoriæ of the forges pulverised, a certain excess of coal-dust, and the powder of calcined bones. For the scoria, basalt or lava may be substituted. If there is not sufficient coal, the glass takes a green complexion more or less obscure, and sometimes a very motley appearance. They also obtain red hyalite with the powder of calcined bones, the oxide of copper, coal, &c., and all these varieties are susceptible of this motley appearance. The hyalite is a good substitute for chinaware in a number of cases, is of a much more showy appearance, and is susceptible of receiving the most complete polish.

PROGRESS OF STEAM NAVIGATION—IRON TRADE.

It does not often fall within our province to refer to a Royal Speech, its topics being generally foreign from our own, at least—though our objects are in common, viz., the well-being of the country—the subjects are not sufficiently specific to enable us to advert to them, as bearing directly upon our design. With sincere satisfaction we have in the late Address from the Throne an exception to this rule, in which there is one notification, explicit and unequivocal, corresponding with our views, and we will venture to predict, as important to the nation as to the particular branch which it more immediately affects. "The progress of steam navigation, and the demands for protection to the extended commerce of the country, will occasion an increase in the estimates connected with the naval service." In this piquant sentence we have two important communications—first, that steam is to be applied more generally to the navy; and, secondly, that our commercial ports are to be put in a state of complete defence, not only by the protection afforded them from the assistance of ships of the line, but by the actual improvement of their own means of resistance and defence. The former intimation—viz., the application of steam to the naval service—is one of peculiar interest at the present moment; the Government has always been cautious, and rightly so, how they patronised any novelty, however manifestly valuable; they never heedlessly rushed into a step from which they would, perhaps, have occasion shortly to recede; having the guardianship of the country in their hands, every ministry has been rigidly careful how they compromised it by a hasty, or injudicious, proceeding. In no department has this just precaution been more remarkable than in the direction of the navy; no scheme, however plausible—no invention, however promising—no improvement, however seemingly deserving—has ever been adopted by the Admiralty, until its merits were severely and satisfactorily tested, or before its advantages by the indisputable evidence of experience, were put beyond all possibility of question. This invariable rule was not broken in the case of steam; amid the representations of the projectors, the approval of the scientific, and even the favourable results of limited experiments, the Government preserved their usual caution, and declined to avail themselves of the proffered advantages. But when, after trial upon trial, and proof upon proof, the principle of steam was fairly and incontestibly established, then was the vast invention readily applied for the benefit of the service. Nor do we blame this tardiness and apparently discouraging distrust; what in a community would be ungenerous and self-destructive, in a corporation—intrusted with our best and dearest interests, not only with our indirect advantage, but our positive defence—is praiseworthy and incumbent; one false step, one reckless improvident concession, might incur an injury, which not all the wisdom of years could repair. But, though slow to speculate, it is always the first to patronise when any improvement has been satisfactorily tested. The adoption of steam has accordingly been steadily increasing in the navy; and, fortunately or unfortunately, however the case may be, it was scarcely applied, before it was put to the most severe and conclusive trial. The war in Syria opened a fair field for putting its merits to the fullest test, and the result, as every one knows, was at once an answer to all objections of its unsuitability in warfare, and a complete and decisive instance of success. Hardly had that expedition been concluded, when another sphere was offered for proving its qualities, by the commencement of the Chinese war; here many difficulties were anticipated—the enormous distance to be traversed by the vessels, sufficient to try the powers of the best machinery; the difficulty of procuring coal, too, was prominently paraded at the time as an insuperable objection to the system; again, the great disabilities of repairing any accident in the machinery at those distant and utterly powerless parts; all these presented themselves as hindrances to success, and yet how totally have these forebodings been disproved by the issue—how completely the hopes and confidence of its friends realised and confirmed. Still, though steam was applied to the service, there were many circumstances which prevented its universal adoption. The chief was its inapplicability to ships of certain classes, not only from the vast encumbrance of its machinery, but the great and apparently insurmountable objection of the paddle-wheels—so ill-adapted to the service of warfare, and so utterly incompatible with the convenience or even safe navigation of larger vessels; and for this reason, though employed for all practicable purposes, its adoption was comparatively confined. But a new invention soon promised to surmount this difficulty; Mr. Smith succeeded in bringing to perfection a principle hitherto disregarded as respects the propulsion of vessels. The Archimedian screw was adapted by him to these purposes—removing at once the chief objections of the paddle-wheels, and presenting peculiar advantages of its own. The system was advanced, and met the ordinary share of opposition and defence, till at length, within these last few days, all doubt has been put an end to by a trial, whose results have been as successful as those of any modern invention on record; and what are the first fruits of this indisputable superiority over the old system?—the Government comes forward, and, true to its principle, takes the earliest opportunity of adopting it; already it had been tested in one of her Majesty's steamers, but when the *Great Britain* more fully proved its efficiency and advantages, the patentee received the commands of Government to superintend the carrying out his invention in one of our dockyards: and, to follow up this earnest of approval by a more decided and indisputable step, the Queen informed her Parliament, plainly and explicitly, that "the progress of steam navigation would occasion an increase in the estimates connected with the naval service." Here, then, is a fair field for the patronage of this and other valuable inventions, so fully exemplified in the construction of the *Great Britain*; and here, again, is another extensive market opening for our iron trade; bright as its prospects were before, they now will be more cheering still, and this late important announcement promises to fulfil our anticipations of last week, that before long iron would be almost exclusively employed in *every* department of shipbuilding. To the second clause of the paragraph in question—viz., the protection of our commercial interests contemplated by the Government, we will, in the premature state of the subject, merely remark that any measures whereby our vast trade may be guarded, whereby our communication with other states may be extended, and whereby her commerce may be protected, must conduce to the welfare of the people, the aggrandisement of her power, and the glory of our country among the nations of the earth.

Since writing the above, we have been officially informed, that Mr. Smith has received Admiralty orders to proceed in her Majesty's steam-vessel, *Rattler*, and superintend the working of the screw in a trial with the *Black Eagle*, *Janus*, and *Victoria and Albert*. It will be remembered that the *Black Eagle* is considered the crack vessel of the steam navy, having beaten as yet all competitors. The *Janus* is fitted with Lord Dundonald's rotatory engines, and it is contemplated to apply the screw to the *Victoria and Albert*, in case of the present trial tending to render that improvement advisable. This test of the qualities of the various vessels, and of the new inventions more or less adopted in all, will be satisfactory to the projectors and the public. Hitherto, the respective merits have been untried; we have now a fair opportunity of their being severally and impartially decided on by competition—meanwhile, the scientific and nautical world will look with intense interest to the result, as involving the merits of some of the most beautiful and ingenious principles of natural philosophy. On the occasion of the *Rattler* going from Gravesend to Portsmouth on Sunday last, she accomplished the distance in *fifteen hours*—a rate of speed, we fearlessly assert, without parallel or approach. In consequence of the success of the *Great Britain*, we are enabled almost confidently to state, that certain influential parties in the shipping interest have already formed a Steam Collier Company, and, the more effectually to carry out their objects, have determined, contingent on the approval of Mr. Smith, to build several vessels, considerably larger than the *Great Britain*, and to be fitted like her with screw propellers! The vessels are intended for the coal trade, but to be capable of being converted into men of war, if that object should be ever desirable. Mr. Smith has offered the Government to fit his screw in any vessel in the service—even in a 120-gun ship—and that, too, without the slightest damage, and at a trifling expense. If steam could thus be made auxiliary to sailing, the art of navigation must surely have reached its climax. What can even ingenuity devise better or more complete?

IMPROVEMENTS IN STEAM-ENGINES.

BY MR. JAMES PETRIE, ROCHDALE.

These improvements in steam-engines relate, firstly, to the application or construction of apparatus to ordinary steam-engines, for the purpose of "cutting off" the steam, when working steam-engines expansively, and consist chiefly in the particular arrangement and mode of working certain sliding valves, or "cutting off" plates, placed in the inside of, and worked in connection with, the common D, or slide valves of steam-engines, which sliding valves or "cutting off" plates are worked by means of a moveable cam or tappet, in addition to the ordinary eccentric or crank used for working the D valves. The peculiar advantages to be obtained by the application of the invention are, firstly, cutting off the steam close to the nozzle of the steam cylinder; secondly, the sliding valves, or cutting off plates, being at the time of motion nearly in an equilibrium of pressure, but little power is required to work them; thirdly, smoothness and ease of motion, as the parts which require to be suddenly set in motion are very light in their construction; fourthly, the ordinary motion (by eccentric) of the D valves being retained, the improved method of admitting steam into the cylinder may be used, so as to avoid the concussion caused when it is admitted too suddenly. The second feature of novelty consists in a method of connecting the aforesaid cutting off plates or slides of steam-engines (and their operating apparatus worked in connection with the common D valves) with the ordinary governor of the steam-engine, so that the steam may be cut off earlier or later by the action of the governor, as the power required is less or more, which will insure the maximum of expansion, thereby economising steam—and, consequently, fuel—to the utmost extent. Suppose, then, we have before us the cylinder and side pipes of an ordinary steam-engine, the two D or slide valves being worked in the usual manner by means of an eccentric or crank, and are similar in form to those of the ordinary construction. The partitions which separate the steam end from the eduction end are placed near to the eduction side of the bars, which traverse across the parts in the facing on the nozzles of the cylinder, so as to make sufficient room for the sliding or cutting off plates; there is also another bar across the face of the valve, at the extremity of the steam end. The space between these bars forms a thorough face or sluice; these two bars are finished to a plane surface on both sides—viz., on the side which slides on the facing on the cylinder nozzle, and also on the side inclosed by the semi-circular part of the D valve; on the last-mentioned surfaces are the sliding plates, by the movement of which the steam is cut off; they are connected together by means of rods, passing through stuffing-boxes in the bottom of the upper steam-box, and in the top of the lower steam-box. The sliding plates are also connected with machinery in such a manner as to cause them to partake the motion of, or move along with, the D valves for any portion of the stroke, and then to move on the inside facing of the D valve, so as to close either of the openings, and thereby cut off the steam for the remainder of the stroke. When the sliding plate covers the sluice in the face of the D valve, the other sliding plate is in such a position as to leave the sluice in the other D valve uncovered. The sliding plate being in this position, and the D valves moving downwards, the sluice is in a condition to admit steam into the bottom part of the cylinder, which steam will be cut off when the plate closes the sluice. When one sluice is thus closed, the other will be opened, and the D valve is then in a condition to admit steam through the upper part of the cylinder by the motion produced by the common eccentric or crank, the sliding plates continuing to move along with the D valves, until the proper time arrives for cutting off the steam at the sluice; in both these cases, the remaining portion of the stroke which the piston makes after the sluices are closed, is effected by the expansion of the steam; the point at which the steam is cut off is varied, by shifting the moveable cam on the common eccentric, either backward or forward, as required.

The second part of these improvements is the mode of connecting the expansion apparatus with the common governor of the steam-engine. As the power required in working stationary steam-engines, particularly those employed for manufacturing purposes, is seldom equable, it is desirable, in order to obtain the full amount of advantage attainable, that the steam should be cut off earlier or later in the cylinder, as the weight on the engine may vary. To effect this, it is necessary that the headstock sliding on a plate or bed should be connected to the eccentric rod by means of the studs, which should be at the end of the rod. Thus connected, the headstock will slide backwards and forwards in the same way, as if it were linked to a lever on the cross shaft, and would, consequently, communicate the same motion by the link to a loose lever or the cross shaft, of the same length as the one engaged in the "gab" of the eccentric rod, as if the said loose lever were fast on the cross shaft. All that is necessary now to complete the motion of the loose lever, is to move the link backwards and forwards; this is performed by means of a cam, which revolves on the shaft, bearing in the headstock, and acts on friction rollers. To connect the apparatus with the governor, it is required that the lower portion of the tube or ferrule surrounding the governor spindle be provided with a pair of discs or friction pulleys, so connected as to rise and fall as the governor balls expand or contract by the variation of their velocity. These friction pulleys are made to act on a face-plate or disc, fixed either at the end of the shaft or a cross shaft connected with it, and they are so arranged that when the engine is at its proper speed they shall not be in contact with the friction plate; but, when the balls of the governor expand, by any increase of speed, the lower friction pulley will be raised, so as to act on the face-plate, and cause it to revolve in a certain direction, and in the contrary direction when they fall below the proper velocity, so as to cause the upper friction pulley to act on the opposite point on the surface of the face-plate. The shaft must be connected with the worm in the bottom of the headstock; the manner of connection will vary with the difference of situation; in some cases it may be connected direct, in others it may require to be conveyed by small shafts and bevel or mitre wheels, which must be so arranged as to put the cam forward—that is, to cause the steam to be cut off sooner when the speed of the engine is too quick, and the contrary when too slow. The patentee claims, firstly, the peculiar method of cutting off the steam in steam-engines, when worked expansively, by the application and employment of the cutting off plates, placed in the inside of the common D or slide valve, as exhibited in the drawings;* secondly, the application and employment of a cam or tappet, which is moveable round its axis, for the purpose of altering the time of cutting off the steam, and which is capable of being so moved, either by hand or mechanism, whilst the engine is at work; and, thirdly, the method of moving the said cam round its axis, for the said purpose, by the action of the governor, as also exhibited in the drawings.

* The specification is published entire, accompanied by some excellent diagrams, in *Newton's London Journal* of the present month.

NEW MODE OF PROPULSION OF STEAM-VESSELS.

BY M. BENLINIER.

The question of steam-vessels being capable of replacing sailing-vessels under all circumstances seems not yet to have been very clearly resolved. It depends entirely on the mode of transmitting the motive power which acts in the vessels; and, reflecting on this circumstance, I think that the propulsors hitherto employed are far from fulfilling the object which we were led to expect, and that it is possible to substitute for them another organ of Nature, more approaching the maximum effect which ought to be regarded. But, before entering into the details which relate to the propulsor which we wish to propose, we must beg in a few words to examine those at present in use. By this examination we shall be able to judge if we have clearly established the inconveniences which they present, and the means of effecting a remedy. The paddle wheels are generally employed in navigation, but their considerable volume, and their position in the sides of the vessels, often give rise to very great inconveniences. The violent shock with which they strike the water on their immersion, and the water which these spokes raise up on their emerging, occasion a considerable loss of power—a loss which is estimated at 0·60 of the force expended. It is, then, with the view of preventing this loss, that all the improvements to be introduced ought to tend. As to the actual position of the wheels, it would, perhaps, be difficult for sea-going vessels to remedy the present state of things—but in rivers we think it might be practicable. The difficulties which arise from this position have caused the substitution of the Archimedean screw for these spoke or paddle wheels, which is placed in the body of the vessel. The first question above mentioned would thus be resolved—But is it the same with the second? Far from it, for this mode of transmission is, from its nature, to consume a portion of the effect; and, after the details which we have been able to collect as to the application of the Archimedean screw, it would follow that its diameter, not being at farthest but two metres, there would be the necessity of impressing upon it a considerable speed, which we could carry to 240 revolutions per minute. Further, if we have but one spiral line, the pressure would be insufficient, and many spirals would oppose the water being introduced into the machine, which would then find less support. Hence that excessive quickness which we are forced to give to these mechanical organs, and, consequently that expenditure of active powers to a pure loss, without reckoning many other inconveniences which present themselves, so that the Archimedean screw appears to us less susceptible than the spoke wheels of allowing steamers to undertake distant voyages. A third mode of propulsion has also been proposed, for some years under the name of *palmipede*—that is to say, in imitation of the feet of aquatic birds. It is not here from arguments only that we pronounce this system the worst of all; the opinion that we have formed on the subject is, on the contrary, founded on facts themselves. We ourselves caused a machine of this kind to be established, which left nothing to be desired as regarded its execution, and with which we could only obtain at furthest but the 0·25 of the power expended. This poor result is very soon explained—on one hand by the shock which takes place as with the spoke wheel—on the other by the return into the water of two of the beams in a contrary sense, whilst the two others are in action; and, lastly, by that inertia which the machine ought to conquer at each instant consequent on a come and go movement. These are the causes which diminish the useful effects of the machine, and render it more than any other inadmissible. As is apparent, all the effects made up to this day for obtaining the maximum effect of a propulsor employed for moving steam-vessels have been without a satisfactory result, so that the whole question still remains to be solved. Let us now see by what means it will be possible for us to arrive at the end which has hitherto been uselessly sought after. It is clear that the most economical mode of transmission is that which is borrowed from the rotatory movement, and, to avoid the difficulties which every other position presents, this movement ought to take place in a vertical sense. Now, the spoke wheels, if we deduct the inconveniences of which we have spoken above, would be preferable to every other system, if the difficulties they present were removed, and the question of the maximum effect of the propulsion to be employed were resolved. It therefore remains for us to find a system of wheels acting like the present spoke wheels, with this difference, that the spokes, or whatever may be substituted for them, should not strike the water, nor raise it in the same manner. By means of this arrangement, it is clear that the wrought-iron spokes, at the moment of their immersion or their emerging, if they present only their side, would not produce any shock on the water, nor raise it behind, as it is done at present, which nullifies the loss of power from these two circumstances. These curved spokes will not effect, it is true, a pressure equal to the vertical spokes or in the direction of the radius, and we might fear the result of the inconvenience that we attribute to the Archimedean screw—that is to say, that we should press on this mechanism a quickness much above that of the rate of the vessel; but the explanations which follow are sufficient to satisfy any objections. It is important, also, that the propulsors we propose should not be more voluminous, and should, consequently, not offer many more obstacles than the present wheels. On that principle let us examine what will be the resistance of the curved spokes to their passage in the water, compared with that of the straight spokes, all other things being equal. The curved spokes being arranged at an angle of 60 deg., and traced on a radius of 1 m. 62, will develope one-sixth of the circumference described by this radius—say, 1 m. 696; they represent an inclined plane, the base of which would be 1 m. 696, and the height 0 m. 36. By submitting this inclined plane to the calculations of gravity, we find that the resistance of curved spokes could not but be 0·208 of a straight spoke. But, with the present spokes, there is a necessity of reducing their number as much as possible, to limit the loss of power resulting from the shock. With the curved spokes, on the contrary, nothing hinders their number from being augmented; and, by supposing it double what it is at present, the resistance of the curved spokes may also be double that which is pointed out above, or 0·416 of the straight spokes. That agreed, let us suppose the speed of the present wheels 5 m. 65 per second (thirty turns per minute), and the rate of the vessel 0·75 of that quickness; the resistance of the spokes should increase as the square of the speed; there would not be any want for the curved spokes, but to impress upon them a speed of 8 m. 76, to make up for the difference of pressure that they present in loss, comparatively with the straight spokes. But this speed of 8 m. 76 is precisely that which is necessary, or nearly so, to the new propulsor that we propose—in fact, by the employment of curved spokes, there is a suppression of an estimated loss of power, as we have said above, equal to 0·60 of the force expended; the speed of the vessel might then be increased in a corresponding proportion, or as the square of the speed of the first vessel is to the square of the speed of the second. On this principle, the rate of the vessel in the last case will be 6 m. 70, which is only, if we suppose as above, but the 0·75 of that of the wheels which imposes the movement upon it—so that the quickness of the same wheels can be 8 m. 93—a speed which is superior to that pointed out as necessary for the curved spokes to act with a power equal to that of the other wheels. Finally, we would not exaggerate the importance of the curved spoke propulsor, the adoption of which we now recommend, by saying that it may be employed advantageously in all possible cases. We will say even that what ought to make it preferable to all propulsors hitherto known, more especially to the wheels with ordinary spokes, is, that it does not require the same position as the latter, and does not occasion the considerable loss of power which is attributed to them—a cause which renders, perhaps, still problematical the substitution of sailing-vessels by steamers for long voyages.—*Mon. Indust.*

[We believe that the inconvenience above referred to, as occasioned by the shock with which the paddle-wheels strike the water on their immersion, has long received the serious attention of a scientific gentleman in Dublin, William Bevan, Esq., M.D., whose researches have at length enabled him to complete a very beautiful and ingenious contrivance for obviating the loss of power experienced in the present system. Dr. Bevan's labours merit all praise, and from the simplicity, yet high importance, of the invention, we trust shortly to be enabled to lay before the public a more explicit detail of its principle and results.—ED. M. J.]

RAILWAY STATISTICS.—Great Britain counts at present 1984 miles of railway at work, and nearly 1240 in course of construction. Germany possesses 1320 miles decreed and in progress. Belgium has finished 152 miles of railway, and is now making 86 more. France, according to M. Teisserene, holds the last rank in railways amongst the nations of the continent. Taken in reference to the population of each country, he estimates that the length of railways finished or in progress give—In England, 11·78 miles to 100 inhabitants; in Belgium, 10·74 ditto; in Germany, 9·61 ditto; in France, 9·50 ditto.

DUBLIN AND CASHEL RAILWAY.—The directors have completed a contract for the works between Inchicore (near Kilmainham) and Carlow. There is a difference of only 1500*l.* between the estimate of the engineers and the amount of the contract.

Transactions of Scientific Bodies.

MEETINGS IN THE ENSUING WEEK.

SOCIETY.	PLACE OF MEETING.	DAY.	HOUR.
Royal Botanic	Regent's-park	Saturday	4 P.M.
Geographical	3, Waterloo-place	Monday	8½ P.M.
British Architects	16, Grosvenor-street	Monday	8 P.M.
Medical	Bolt-court, Fleet-street	Monday	8 P.M.
Medical and Chirurgical	53, Berners-street	Tuesday	8½ P.M.
Civil Engineers	25, Great George-street	Tuesday	8 P.M.
Zoological	11, Hanover-square	Tuesday	8½ P.M.
Society of Arts	Adelphi	Wednesday	8 P.M.
London Institution	Finsbury-circus	Wednesday	7 P.M.
Graphic	Thatched-house Tavern	Wednesday	6 P.M.
Pharmaceutical	17, Bloomsbury-square	Wednesday	9 P.M.
Royal	Somerset House	Thursday	8½ P.M.
Antiquaries	Somerset House	Thursday	8 P.M.
Rl. Society of Literature	4, St. Martin's-place	Thursday	4 P.M.
Medico-Botanical	32, Sackville-street	Thursday	8 P.M.
Astronomical	Somerset House	Friday	3 P.M.
Royal Institution	Albemarle-street	Friday	8½ P.M.
Philological	49, Pall-mall	Friday	8 P.M.
Royal Asiatic	14, Grafton-street	Saturday	2 P.M.
Mathematical	Crispin-street, Spitalfields	Saturday	8 P.M.

GEOLOGICAL SOCIETY.

JAN. 22.—The PRESIDENT (Mr. Warburton) in the chair.

The following communications were read:—Geological Features of the Country Round the Mines of the Taurus, by W. W. Smyth, Esq.—The mines described in this paper appear to be worked in great masses, rather than beds or veins. They consist of two—one containing ores of copper, and the other argentiferous ores of lead, worked for silver. The former, at Arghaneh Maden, is worked in igneous and altered rocks, in the neighbourhood of Diarbekr, the average annual supply being about 3500 tons of ore, producing about 380 tons of copper; but it is thought that the return of metal from the ore might easily be doubled. There are several mines of silver and lead worked at Kiebban Maden, the proportion of silver being about 1 oz. or 1½ oz. per 100 lbs.—about 900 lbs. weight of silver are produced annually, and a small quantity of lead. The geological date of the formations in the Taurus seems to be in most cases that of the cretaceous period, but there are also some metamorphic rocks of more ancient origin.

On the Newer Coal Formations of the Eastern Part of Nova Scotia, by J. W. Dawson, Esq.—This paper was an appendix to a communication made last year before the Geological Society, and completed the account prepared by the author of the carboniferous formation. The paper also contained a notice of some footmarks observed in the sandstone, which were considered by the author to be those of a bird. In an appendix, a notice was given of the junction of the carboniferous and silurian rocks at a locality called M'Cara's Brook.

FEB. 5.—A paper was read "On Raised Beaches and the Shells found in them, occurring on the coast of Essex, near Walton," by J. Brown, Esq., of Stanway.—The object of this paper was to direct attention to the fact, that low raised beaches exist on this part of the eastern coast, and that they contain fossils not only marine but freshwater, and confined to a small number of species, though individuals are very numerous. It was also the wish of Mr. Brown to bring these raised beaches into comparison with the beds called "till" in the Clyde Valley.

A paper was read "On the Geology of the vicinity of the Wollondilly River, in Argyle County, in the colony of Sydney, New South Wales," by Rev. W. B. Clarke.—The district described by the author is chiefly occupied by igneous rocks, upon which sedimentary rocks of the carboniferous period repose unconformably. The igneous rocks consist of granite and syenite, of porphyries, basalt, and trachyte. They pass into, and occasionally intersect, one another, and are traversed by numerous dykes of igneous rocks of various kinds. The sedimentary rocks are not less violently disturbed, and have become greatly altered in every place where they have been brought into contact with the granite.

A communication was made, by Dr. Fitton, "On the Beds of the Lower Greensand of the Isle of Wight."—Dr. Fitton, after describing the general structure of the back of the Isle of Wight, alluded to the numerous fissures or chines found in these localities. He described the different beds of the lower greensand, and mentioned the fossils most characteristic of each of them, and concluded, by alluding to some of the fossils from the Neocomien beds of the continent, mentioning the fact, that these foreign strata are strictly contemporaneous with the lower greensand of England.

SUPPLY OF PURE WATER TO THE METROPOLIS AND ITS SUBURBS—PROPOSED NEW COMPANY.—No. VI.

The attention of the public being now very much drawn to the subject of pure water, as essentially necessary to the existence of mankind, it would appear to be extremely desirable that clear views of the elementary principles of the question which vitally concerns the domestic comfort of every human being in the metropolis of the British Empire should receive the utmost publicity, to the intent that a better mode should speedily succeed the present bad and inefficient system for the supply of water to the inhabitants of the most populous city in Europe. With this preliminary, we shall now direct attention to the fifth allegation, involving the consideration, how far the water of the River Thames—contiguous to, or in the neighbourhood of, London—is in a state proper to be employed as a source for the supply of an indispensable article of consumption to the rapid increasing population in the southern portions of this metropolis. That the water taken up from the River Thames, between Vauxhall and London-bridge, being charged with the contents of upwards of 150 public common sewers, and with all sorts of decomposed animal and vegetable matter, and other deleterious substances, rendering the said water offensive and destructive to health, ought no longer to be taken up by any of the companies from so polluted and poisonous a source. This is a question which materially affects the three local companies south of the Thames—viz., the Lambeth, Southwark, and Vauxhall Companies; and is of vital importance to the community located in the extensive boroughs of Southwark and Lambeth, and well deserving, therefore, of consideration at the present juncture, because it has been the subject of much acrimonious controversy; and also respecting which a variety of representations has gone forth to the public, which necessarily embraces a multitude of considerations of a complicated nature—inasmuch that the supply of this necessary element of life, in a wholesome and salubrious state, at a moderate and permanent rate, is essential to the health and comfort of a large class of individuals, if not the very existence of thousands, in which also the interests of public bodies are deeply involved. We conceive, then, that, in order to enable those interested in this great element of nature to form a correct and unprejudiced opinion upon the subject, they need only be guided in their judgment solely by the facts adduced and the evidence of their own senses, to the knowledge of the qualities of that water which they are daily using for domestic purposes.

The Thames water flows through an extensive tract of land, and receives the drainage of a considerable extent of country from the respective towns and villages on its stream; when it approaches the metropolis it becomes loaded with a quantity of filth, which renders it disgusting to the senses, and improper to be employed in the preparation of food; the adulteration is not only the impurities held in suspension, but the foreign matters which it receives amalgamates effectually with its other component parts, and renders it unfit for domestic use. The peculiar noxious principle of Thames water is its corrupted animal and vegetable matters with which it is impregnated; these matters are, therefore, poisonous; in consequence, they ought to be suspected, in inquiring into the salubrity of the Thames water as a source for the supply to the inhabitants of a great city—for it is this impregnation which ought to be the chief object of research. Simply earthy matter has never been traced to be particularly deleterious to the human system—metallic matter of all kinds is the more just object of suspicion; but the putrid and putrescent matter, the animal and vegetable substances in a state of decomposition, is that which is actually mischievous in Thames water—it is immediately and decidedly deleterious to the health and comfort of mankind. The year of 1535 presented a spectacle to which the history of modern civilisation affords no parallel, and which would, in this "age of intellect," be an epoch of no ordinary magnitude, if the nineteenth century, with its rapidly increasing advances of civilisation, would emulate the example of a period popularly termed the age of feudalism and barbarism—inasmuch that the supply of pure water to the metropolis was considered essential to the health and comfort of its inhabitants, as to preserve the River Thames in its native purity. The corporation of London issued orders at stated periods, forbidding all persons from discharging any soil or filth whatever into it, to the annoyance and injury of the said river. An Act was accordingly passed in the reign of Henry VIII., in which it was enacted—"That if any person or persons do, or procure anything to be done, in the annoyance of the stream of the River Thames, by casting dung, or rubbish, or other things, in the said river, he shall forfeit, for so offending, a hundred shillings." But this was not sufficiently stringent for the age of the sixteenth century, at a period when the population was not commensurate with the present increased size of the metropolis—when the length and breadth of the lands in the suburbs was a wilderness; it was, therefore, further enacted—"If any person, or persons, in great rains, sweep their soilage or filth off their houses, into the channels, and the same afterwards is conveyed into the Thames, every person so offending shall forfeit, for every such offence, one shilling and eight pence." Within the last century, an entire metamorphosis in this respect has taken place in the municipal regulations of the metropolis of Britain. That which three centuries ago was considered an offence, to be visited with penalties, the inhabitants are now exhorted to perform as a duty. The Commissioners of Sewers not only permit the inhabitants, but (say they) it is a necessary element of life to let all the soil and filth pass into the drains, instead of accumulating it in cesspools, to be removed by the nightmen as formerly; by the accessory of an efficient and well regulated supply of water, the drains and sewers are now kept in a state of cleanliness never before known—the sewerage is effectual in carrying off the suillage, and keeping them perfectly free from accumulation—its stream of perpetual filth is not obstructed in its progress towards the Thames, where it deposits its poisonous sediment in a fluid, which is supplied to the community of large districts in the suburbs of the metropolis for the preparation of their food. Every mode is made available that the ingenuity of science can adopt, to facilitate the evacuations and ablutions of London to pass through the common sewers into the Thames. This method, no doubt, ensures a perfect cleanliness of sewers, and a preventive to any noxious and offensive exhalations, but it is a strong proof, that the water taken up in the midst of sinks and drainage, becomes palpably objectionable as a source of supply for human consumption, and it cannot be otherwise than what professional men have declared it to be—viz., a filthy fluid "loaded with decayed animal and vegetable matter, and other substances equally deleterious to health, and unfit for domestic purposes."

That the water in the range of the London district is in an excessively foul and poisonous condition, and not in a fit state to be taken up as a source for the supply of a densely-peopled city like the metropolis, will be placed beyond doubt, when we contemplate that the impurities and refuse of the town is conveyed into the sewerage, and the whole material that is consumed in London is all swept away by the river, and that there must be quantity enough every week swept away to fertilise a vast number of acres of land, if made productive. The mode of introducing living animals, and slaughtering them in different parts of the town, ostensibly for food, is such, that a great proportion of it must be carried off by drains, and left to decompose, two-thirds of which being only really useful for food; then, if we look that in London there are very few common privies now but which empty themselves into common sewers. Half a century ago, the whole of London received the contents of those places into cesspools in the ground; latterly, they are conveyed into the sewers, and the river receives them all. Looking, therefore, at the filth that flows from the different sewers of the metropolis, and the dead dogs, cats, and rats, and also putrid fish, which are left on the mud at the side of the river, on the retiring of the tide, it is sufficiently expressive for believing that the Thames water is so contaminated and deteriorated in its general and usual state, as to be unfit for domestic purposes, and decidedly have a deleterious tendency on the health of the inhabitants of populous districts. It is obvious, then, that the contents of sewers deservedly attracts considerable attention in the agitation of this much "vexed question," and forms the most prominent evil in regard to the general insalubrity of the Thames water; and to attempt to refute that the sewers are continually discharging their poisonous fluid into the river, is based upon principles so utterly subversive of all facts, that, however sophistical the reasoning may be, the strongest adherents of foul water may argue according to their relative interests in public bodies, but cannot restore turbid water to a wholesome and salubrious state, nor render that river which receives the accumulations of the enormous population congregated in this metropolis as a source for the supply of this national element, when it cannot be doubted that a considerable quantity of human excrement in a subdivided and undecomposed state does actually pass into the river, and that the progress of the tide up the river defies any complete discharge, so that, in fact, it is carried so far down the river, and again by the tide brought so far back, and the only difference is, that it has undergone a more complete mixture, rendering the impurities less visible, but not less deleterious—that although the palpable impurities and common mud may be separated to a certain extent by the filter, the water must contain in great abundance the saline matter from the liquid part of the sewer filth, which, being perfectly soluble, will pass the filter, and become a real cause of objection to water drawn from this noxious source. There are nearly 150 public common sewers daily and nightly disgorging their foul contents in that very direction in which certain companies draw up their supply for the inhabitants south of the Thames. The River Thames may be considered as neither more nor less than the common sewer of London, so far as receiving all the sewers of London containing the impurities of a dense populated city of two millions of human beings, and forming a mass of filth, pollution, and putridity, such as we have reason to believe has never been witnessed by ancient or modern civilisation.

On a survey made of the common sewers, we believe it was found to number upwards of 150, or nearly as follows—but, as we are not in possession of a recent, nor, as we conceive, an accurate, survey of the river, we are open to correction, for the reason that we may inadvertently have fallen into error, although not to any material extent, such as to repudiate the fact that the contents of these sewers are the elementary causes which render the river in an insalubrious state:—From Chelsea to Vauxhall-bridge, 17; from Vauxhall to Westminster-bridge, 13; from Westminster to Waterloo-bridge, 31; from Waterloo to Blackfriars-bridge, 12, including the Fleet-ditch, which is twelve feet wide; from Blackfriars to Southwark-bridge, 7, including the great Walbrook sewer, 7 ft. by 4 ft., which has been known unable to discharge its filth; Southwark to London-bridge, 7; and from London-bridge to the Tower, 7, including the Irongate sewer, 7 ft. by 4 ft.; from the Tower to the River Lea, 11; on the Southwark side of the river, 43; and, from the enormous quantity of filth constantly discharged by those sewers, with the refuse of colour, lead, gas, soap works, drug-mills, and manufactories of various descriptions, bearing a very large proportion, comparatively speaking, to the pure water of the River Thames, it is impossible it can be wholesome, and improper it should be used for domestic purposes. The great sewer at Dowgate is always discharging a great quantity of black water; the Fleet-ditch sewer, at Blackfriars, at several periods of the tide, discharge black slimy liquid, with gas oil, dead animals and entrails from slaughter-houses, sufficient to discolour the whole of the Thames in its neighbourhood. The sewers at Essex Wharf, and others towards Westminster-bridge, send out enough filth to keep the shores near them always very foul, in the same quantity and quality of filth as the great Ranelagh sewer, which receives the drainage of every description from Brompton and a great portion of Chelsea, and was deepened at great expense, in order that its daily increasing mass might pass with greater rapidity into the Thames.

The great sewer near Vauxhall, in the neighbourhood of the Vauxhall Water-Works, is also always pouring out great quantities of gas oil, with much other filth, disgusting to the senses, and a more filthy spot it is scarcely possible to imagine; yet, at this very spot, the Vauxhall Company erected a steam-engine to pump up into their reservoirs the foul contents of a common sewer; this poisonous fluid, supplied to the houses of their customers, must, I submit, have a tendency to effect the health of this populous district. Thus do the three companies not only enter into a compact to raise their rates to a most unjustifiable extent, but send up into the southern districts at the rate of 6,000,000 gallons per day, to be used for all domestic purposes, a fluid which has been pronounced by professional men of the first eminence to be "loaded with decayed animal and vegetable matters, and other substances equally deleterious to health, and unfit for domestic purposes."

NEW DREDGING MACHINE.—M. Letestu has just completed a dredging apparatus, which seems destined to render, in some extraordinary cases, especially in the Loire, very great assistance to navigation. The machine consists principally of a barge with lateral wheels, which drag up the sand, mud, and stones, thrusting them away right and left of the vessel, thus opening a channel to the navigation which did not exist before. The experiments, to which M. Letestu has submitted his apparatus, in the presence of the first capitalists and commercial men, have been most convincing to every one. The obstacles which were opposed to the working of the model quite surpassed its proportions, but they were successfully overcome. In place of working on a soil covered with a rapid stream, which ought necessarily to favour the removal of incumbrances in the way of navigation, it has been most successful on a compact and difficult soil to a wide extent. Thus all minds in this city are intent on the success of an apparatus, in which both practical and scientific men are engaged to report, but of the success of which they are most sanguine. Every confidence has been shown to the speculators, and 25,000 f. are voted for the experiments. We shall give the public the results of this important affair, with which the great commerce of Orleans has associated itself with as much eagerness as disinterestedness.—*Moniteur Industriel.*

RECENT AMERICAN PATENTS.

[From the *Journal of the Franklin Institute.*]

IMPROVED WATER POWER, TO BE SUBSTITUTED FOR WATER-WHEELS IN MILLS: J. Carnegy, Tulley, Missouri.—The patentee says—"My apparatus is of that kind in which a number of buckets are affixed to two, or more, endless chains that pass around suitable drums, to which said chains are geared by teeth on said drums, the teeth taking into the links of the chains. The buckets are to be attached to the chains by hinge joints, so that they may fall over and lie flat upon the chain, as they are carried back on the upper side of it. The chains and buckets, with their appendages, are to be secured in a proper frame, constituting a part of a hollow trunk, sustained by two floats, or buoys, in such manner as that the whole apparatus shall rise and fall with the rise and fall of the current in which it is placed. Chain paddles have long since been attempted, but set aside because nearly the whole force of the current is expended on one paddle only, which cuts off the action of the current from the others; with the view to obviate this defect, the patentee describes the application of gates to each side and bottom of the hollow trunk, each succeeding gate being extended out farther than the preceding, to catch the current, and conduct it on to the paddles.—*Claim:* "What I claim as new, is the employment of a series of buckets which are connected by hinge joints to two, or more, endless chains, in the manner set forth; the shafts of which buckets are furnished with friction wheels, or rollers, that run between ways below and above them, and have stop pieces that extend back, so as to come into contact with a link of the chain in the immediate vicinity of the next succeeding bucket, in the manner and for the purpose made known, which endless chains of buckets, so arranged, I intend to combine with a floating trunk furnished with wing gates, and otherwise constructed as described."

STEAM-ENGINE VALVES: S. Barber, New York.—"The object of this improvement is to control, or regulate, more perfectly, the quantity of steam which is allowed to pass into the cylinder while the engine is passing the centres, and thereby relieve it of much unnecessary friction, and from the unpleasant, injurious, destructive shock, or jar, which is usual, especially on board of steamboats." To accomplish this object, there is a ring which projects from the end of the conical portion of the valve, and which passes into the aperture of the valve seat, leaving a space between the inner periphery of the valve seat, and the ring on the valve of about one-sixteenth of an inch, through which the steam passes, until the valve is lifted sufficiently high to withdraw the check ring from the valve seat.—*Claim:* "What I claim as my invention, is the check ring used in connection with the steam valve substantially as described."

NEW FORM OF RAILS FOR RAILROADS: J. M. Bay, Harrisburg, Pennsylvania.—These rails are formed of quadrangular bars, cast on to small wrought-iron bars, and at the ends they are formed with wings, brackets, or flanches, by which they are bolted to the stringers, as a substitute for chairs; and for the purpose of retaining all the rails in line, at one end the rail projects beyond its wings, or flanches, and is received between the wings, or flanches, of the next section, which, for that purpose, project beyond it.—*Claim:* "What I claim as new, is the particular manner of forming the bars at their ends, which is such, that the end of one bar, in its whole size, shall be received between the wings, or brackets, which form the chair, or that part which forms the next contiguous bar, is attached to the string piece, as described; by which improvement on a cast-iron rail, that has a wrought-iron rod inserted in it, I have rendered such bars, when resting on string pieces, perfectly safe, and am enabled to substitute a cheap for a costly rail." The rod of wrought-iron within the cast-iron rail is not claimed.

IMPROVEMENTS IN LEAD PIPES: C. and G. E. Sellers, Cincinnati.—In manufacturing lead pipes by this process, the metal from which it is to be formed is fused, and poured into a receiver of cast-iron, or other metal of great strength, which receiver is heated by means of a suitable furnace, so as to preserve the metal in a fluid state. The lower part of the receiver contains a die, having an opening through it of such size as to adapt it to the forming of the outside of the pipe, and a case or mandrel to determine its size or calibre within. It also enclosed the apparatus which is employed for the purpose of cooling the pipe as it leaves the core, and also of keeping the temperature of the core below that of melted lead, by which means we effectually prevent the combining of the lead with the surface of the core, which takes place when lead is in a fused state, and is subjected to heavy pressure. The fused lead is to be forced out by means of a ram or plunger, made to fit the cylindrical cavity containing the lead, the said plunger being brought down by means of an hydrostatic press. *Claim:* "We do hereby declare, that we do not claim any of the parts of the said machinery when taken separately, with the exception of those hereinafter particularly pointed out; nor do we claim the use of the hydrostatic press for applying the force required in the formation of the pipe, nor the use of conical dies for forming its exterior, or of a mandrel for forming its interior, nor the bridge by which said mandrel is sustained—these having been long since used, and being described in the specifications of patents obtained in England and elsewhere, and having, therefore, become public property; nor do we claim the manufacturing or forming of lead pipe from lead kept in a molten state whilst it is kept in the cylindrical cavity, which we have called the receiver, and also when it passes the bridge and arrives at the conical die, and the part of the mandrel which said die surrounds—this having been before done, by us and by others; but what we do claim as our invention is, the employment of a tubular core or mandrel, divided longitudinally into chambers, through which heated water, air, or steam, is to be passed, in the manner described, and for the purpose of preserving said core at a temperature somewhat below that of melted lead, by which device the lead is effectually prevented from adhering to the mandrel. We claim the manner of forming the packing of the ram, by attaching to its end the piece of wrought-iron, rendered thin at its lower edge, by forming the face of the said piece concave, for the purpose above set forth. (The purpose here alluded to is, keeping the piston tight, and preventing the escape of the melted lead around the edges of the ram or piston.) We claim the combination and arrangement of the parts constituting the water chamber, consisting of the tube, the bed-piece, and the conical die—the supply of water thereto being given, and governed substantially as described."

IMPROVED METHOD OF MAKING BRICKS: N. J. Wyeth, Cambridge, Massachusetts.—The object of this composition is, to produce bricks which will admit of driving nails into them, to avoid the necessity of introducing in walls what are known amongst mechanics as "wooden bricks." This composition consists of clay, mixed with either sawdust, charcoal, peat, or tan-bark, after it has been used by the tanner. The proportions may be varied, but the patentee recommends three parts of clay to five parts of either of the combustibles above mentioned.—*Claim:* "I do not claim mixing combustible materials with clay for making bricks, but I claim mixing them in such proportions as will produce bricks possessing the above named properties."

IMPROVEMENT IN LAMPS: S. Rust, New York.—This is for an improvement in hand and other lamps, in which the wick is raised by means of a roller, and the object is to insure the raising of the wick by the roller, which it does not always do as heretofore arranged, and to facilitate the introduction of the wick. These two objects are attained by attaching a spring to the wick tube, which extends up through a hole or recess in the cap, made sufficiently large to give it ample play. The upper end of the spring is provided with a thumb-piece, by which it can be pressed towards, or drawn from, the roller.—*Claim:* "What I claim is a thumb-piece, press, or slide, to manage the wick, by pressing the thumb-piece, press, or slide, against the wick or wick raiser with the finger or thumb, or relieving the pressure from the wick or wick raiser, combined with the roller, or any other wick raiser, analogous to the roller; and also the recess or opening in the tube or stopper, combined with either the spring thumb-piece, press, or slide, as above set forth, or in any other way essentially the same."

Another improvement has been patented by Mr. J. Lobin, Bloomfield, New York, for burning lard and other concrete fats.—In this lamp, the lard or other fat is to be fed up by means of a packed piston, which is worked up and down by a vertical screw, extending from the bottom to a little above the top of the reservoir. The piston is packed, to prevent the escape of the lard, &c., and the screw by which it is worked up and down is hollow from the bottom to near the top, where it is pierced, to permit the air to escape and pass in when the piston is forced up or down; the screw also answers the purpose of a heat conductor. The wick holders are attached to a ferule slide, through which the screw passes, to prevent the wicks from coming in contact with the screw.—*Claim:* "What I claim as my invention is, the combination of the cups or piston, with the perforated screw stem, constructed and arranged substantially as described, and also, in combination with the cup piston and screw stem, the slide as above described."

STONE-DRESSING MACHINERY: H. Ward, Charlestown, Massachusetts.—The block of stone to be pecked and dressed is placed upon a carriage, which passes it, by a slow motion, under a series of pecking and dressing chisels. These chisels slide in a frame inclined to the plane of the carriage, that they may act on the stone obliquely, instead of vertically, and, for the purpose of changing this inclination, one end of this frame is jointed to the main frame of the machine, and the other may be elevated and depressed at pleasure. The chisels are held up by springs, and forced against the face of the stone by hammers actuated by tappets on two shafts, one at each end of the frame. The first and second rows of these chisels are pointed, for the purpose of pecking, and the others are flat, for dressing the surface. For squaring, or forming, the edges of the stone, there is a chisel on each side, with the lower edge at right angles with the side, and operated in the same manner as the peckers and dressers; these break off the stone, and form the edge, so that when the block is turned over to have the other faces dressed, the sharp corners shall not be broken off.—*Claim:* "I claim the manner by which I am enabled to vary, or alter, the inclination of the cutting chisels, with respect to the plane, or face, of the stone to be dressed—viz., by sustaining, or arranging, the stocks, or spring holders of the chisels in a moveable frame, which shall turn on centres, or bearings, disposed at one end thereof, or any other suitable part of the machine; also the combination with the series of cutters for dressing the top surface of the square, or blunt edge cutter, or cutters, for the purpose of forming the square corner, or edge, of the stone, as set forth."